

S I N C L A I R

Every month £1.45 January 1989



**WORLD**

## **TECHNICAL HELPLINE**

A guest star from the  
QL world visits QL World  
this month!

## **GREATER PRECISION!**

DP's latest updates  
to their popular programs

## **PROGRAM OF THE MONTH**

Two games for the  
festive season

## **THE PRINTER REPORT**

Part two of our true life series

## **REVIEW**

Quiz master







86 Commercial Road, Paddock Wood, Kent TN12 6DT

089283 2552

**COMBINED MDV T KIT £19.95**

MDV and ALMDV toolkits on one microdrive

**NEW!**

**COMPUWARE**

**ALMDV TOOLKIT £14.95**

1000 lines of commented source code for mdv header and sector access

**FORTH £29.95**

Professional Forth 83 compiler  
● Fast and compact ● Many extensions

**1 TO 1 DUMP £5.99**

Undistorted screen dump to an Epson FX80 printer

**Computer One Professional Monitor NEW 39.95**  
(Upgrade price 20.00 if you return old cartridge - you need to keep the old manual.)

**New Features:**

- Symbolic debugging including symbol management.
- Integral 68000 assembler for single/multi line assembly and assembly from files.
- Include files.
- Dual screen debugging.
- Function key control of monitor clones.
- New commands: ass, noass, =, nojib, include, noinclude, nosymbols, noeval, swap, noswap, noclones, noflags, error, escape, sleep, base, \*.

All of the above in addition to:

- Integral disassembler
- Tracing of code in RAM or ROM
- Move and search memory
- Queue tracing
- Memory modify and display
- Breakpoints in RAM or ROM
- Full job inspection and control
- Configurable multi-window display

**BOOT 128K £5.99**

Run "128k only" programs in your expanded QL

**QL PASCAL £29.95**

Exceeds the ISO standard!!

- Fast
- Simple to use
- Efficient
- Professional

**ASSEMBLER £19.95**

The fastest QL Assembler

- Editor
- Linker

**PRO-MONITOR £29.95**

As monitor plus symbolic debugging (Return old cart + £15 to upgrade)

**TYPING TUTOR £14.95**

Professional tuition in easy steps

- Speed and accuracy measurement

**MULTI-PRINT £5.99**

Print multiple copies of files with this multitasking program

**MONITOR £15.95**

Powerful, full featured debugger

- Many unique facilities

**COPYCAT £10.99**

Backs up most protected cartridges in no time

**MDV TOOLKIT £9.99**

Extensions to read/write mdv sectors, headers etc

**Task Swooper (Version 2) NEW 19.95**  
(Upgrade price 10.00 if you return your old Task Swooper manual.)

**New features:**

- True job cloning. (Saves memory, eg: 9 Psion clones in a 640K QL leaves 400K free!!)
- Ready made and easily customised start-up menu program.
- Automated printer driver selection (useful for program swapping and also for selecting different typesetters from your printer).
- Automated set up of the QL clock minimises typing by remembering the year/month/day.
- Multitasking clock program.
- Compatible with the QL front end program QATS.

All these features, and Task Swooper still only uses 10K of RAM, and is compatible with floppy discs, ROM toolkits, RAM discs and useful utilities such as QL Keydefine.

**Mega Toolbox NEW 29.95**

(Demonstration cartridge - redeemable against purchase: 10.00)

This is not just another run-of-the-mill QL toolkit. It adds over 168 new commands to QL basic, and truly breaks new ground. Extensive and original use is made of the QL's multi-tasking ability, enabling the basic programmer to perform wonders, even if he wants to compile his programs.

**Main Features:**

- Designed for use by serious programmers and software houses.
- Improved control of QDOS resources (including memory, keyboard, pipes, files, jobs, alarm clocks and time playing jobs.)
- Windows / graphics (saving, restoring, copying, mirroring - optional compression.)
- New keyboard input driver for better command line editing
- Drawing / text printing commands (eg 3D text), ideal for constructing animated slide shows for games/advertising etc.
- Dual screen handling (copying, swapping, automated screen mode control.)

Here are just 19 of the 168 new commands: FREE, MEM, ALCHP, KCHP, MCOPI, MFILE, MSEARCH, FACT, DAYS, UPPERS, LOWERS, IIFX, BIN, DEC, FILE, LEN, FPOS, GET, PLOT, KEYBOARD, ENTER, ACTIVATE, Q, STICK, PROMPTS, JOBS, JOB, STAT, REMOVE, PIPE, ID, CONNECT, SET, FONT, PRINT, JD, MINKIT, EXPAND, HIDE, SHOW, ZOOM, PRINT, X, SLIDE, X, ALARM, X, QTRAP, QCALL.

**Expert System Shell NEW 49.95**

This is a serious tool designed both to introduce the novice to the design of expert systems, and to be used for serious expert system work. The expert system programmer can construct sophisticated rule based systems and put them into real applications. A tutorial will help you learn how to design an expert system and for ease of use, context sensitive help is provided.

**Main Features:**

- Tokenised rules save memory (about 100 rules in a 128K QL).
- Precompiled expressions for fast rule evaluation.
- Intelligent searching and precompiling of rule base.
- Boolean and fuzzy logic plus user definable probability relationships.
- Formatting of input and output and ability to construct menus for the user.
- Original constructs: FIRST OF, MIN OF, MAX OF, ALL OF
- Conditional operators: =, >, <, <=, >=
- Multiple goal paths ... and much more.

**ICE**

**\*LOOK FOR SPECIAL OFFERS**

**ICE**

- Choice Multitasking Program
- Toolkit especially for ICE users

ICE is a ROM based utility program that turns your QL into an ICON controlled "state of the art" computer. Not only does it add a number of functions not found in a standard QL, including calculator and calendar, it also makes all basic functions a dream to use.

**ICE + MOUSE**

The Edssoft mouse combined with the above ICE rom gives your QL the power of the Apple Macintosh or GEM Mouse control is implemented on all packages that use the ICE system, which gives a very smooth and fast response that will not be out of line. If you already have ICE we offer a £10.00 trade in if you return your existing ICE.

**ARTICE OR MOUSEART**

A keyboard or mouse controlled graphics program. The features include circle, line, box, free hand draw, paintbox colours and brushes, copy, transfer and save image. Epson printer dump, undo, spray can, recolor, text, mode 4 and 8 operation.

**ICICLE**

A multi tasking utility that allows you to set up your own ICONS for the control of programs, including QJUL, ABACUS and a host of other programs. As well as a full ICON editor it includes a printer spoofer and printer manager.

**DRAWING OFF-ICE**

3D screen designer aimed at producing true 3D images on your screen. The perspective is automatically calculated to a given vanishing point. This is not some complex co-ordinated program which requires you to work out every point of the 3D object in advance. Requires 3 1/2" disk drive. This program now includes version of mouse art. Expanded memory required.

**NEW PUBLISHING OFF-ICE £24.95p**

Incorporating an exchanged version of mouse art. Everything you need to design your newspaper or publication  
Disk + Expanded Memory only required

**BIG DISCOUNTS AND IMMEDIATE ADVICE!!**

**ORGANISER**

The machine that thinks with you

1 YEAR 100% FREE WARRANTY 5/24  
24 HOUR 12-30 SERVICE  
24 HOUR 11-30 SERVICE  
6 MONTH 12-30 SERVICE  
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Unfortunately, we are no longer able to answer enquiries made by telephone. If you have any comments or difficulties, please write to The Editor, Open Channel, Trouble Shooter, or Psion Solutions. We will do our best to deal with your problem in the magazine, though we cannot guarantee individual replies. Back issues are available from the publisher price £2 U.K., £2.75 Europe. Overseas rates on request. Please telephone 089 283 4783 to check availability.

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## NEXT MONTH

### DUET FOR FOUR HANDS

Ron Massey works out on two new extension keyboards for the QL

### BUGS IN THE BELFREY

Pest control officer Goodwin smokes out some more undesirable insects.



# As usual, the 'experts' said it couldn't be done

FROM THE PEOPLE WHO BROUGHT YOU SUCH UNIVERSALLY ACCLAIMED CLASSICS AS EYE-Q, EDITOR, LIGHTNING, PROFESSIONAL PUBLISHER, SUPERCHARGE AND TURBO, THERE NOW COMES A PROGRAM THAT SAFEGUARDS AND GUARANTEES THE QL'S FUTURE FOR AS FAR AHEAD AS WE CAN SEE. THIS PROGRAM IS THE SOLUTION.

QUITE SIMPLY, THE SOLUTION MAKES YOUR QL THINK IT IS AN IBM PC.

THE SOLUTION IS A FULL-BLOWN IBM PC AND MSDOS EMULATOR. IT WORKS ITS MAGIC IN THE ONLY WAY THAT IS CORRECT: BY UNERRINGLY ACCURATE EMULATION OF THE 80X86 FAMILY CPU ("THE CHIP") AND THE ASSOCIATED CORE HARDWARE THAT IS TO BE FOUND INSIDE EVERY PC AND EVERY PC COMPATIBLE COMPUTER (INCLUDING THE AMSTRAD, APRICOT, ATARI PC, BROTHER, COMMODORE PC, COMPAQ, EPSON, OLIVETTI, OPUS, SHARP, TANDON, TOSHIBA, ZENITH) EVER MADE. AND ALL THIS IS DONE WITH OUR NEW STATE-OF-THE-ART SOFTWARE; THERE IS NO HARDWARE FOR YOU TO CONNECT, DISCONNECT, PLUG IN OR SOLDER.

WE THEREBY PROVIDE AN ENVIRONMENT IN WHICH ANY NON-OBSOLETE VERSION OF MSDOS, THE FAMOUS MICROSOFT OPERATING SYSTEM, CAN HAPPILY EXIST. THE SOLUTION MAKES MSDOS THINK IT IS WORKING IN A PC.

SO WHAT? SO YOU CAN RUN PC PROGRAMS ON YOUR QL, WITHOUT ANY HASSLE OR ANY COMPLICATION. THE SOLUTION AUTO-BOOTS AND THAT'S ALL THERE IS TO IT - THERE ARE SIMPLY NO INSTALLATION PROCEDURES, CUMBERSOME OR OTHERWISE. DESIGNED AND TESTED BY THE INTELLIGENT, THE SOLUTION IS FOR USE BY DUMMIES, OR EXPERTS.

THE SOLUTION RUNS AS FAST AS IT IS POSSIBLE FOR AN MSDOS PC EMULATOR TO RUN. AMAZINGLY, IT IS FASTER THAN THE ST ONE! THE SPEED IS MORE THAN ADEQUATE FOR EVERYTHING BESIDES INTERACTIVE GAMES - BUT WHO WANTS TO USE PC GAMES (TRY BLOCKLANDS INSTEAD)?

WHAT IS THE CATCH? THERE ISN'T ONE. YOU CAN NOW OBTAIN THE BEST-KNOWN SOFTWARE IN THE WORLD - TITLES FROM THE LINES OF ASHTON-TATE, BORLAND, LOTUS, MICROFOCUS, MICROSOFT, PEGASUS, SAGE, SUN, ZORTECH - PLUS THE HUGE RANGE OF MSDOS PUBLIC DOMAIN PROGRAMS, AND RUN THEM ON YOUR QL. AND YOU CAN STILL USE ALL YOUR EXISTING PROGRAMS TOO. SO IF YOU HAVE AN APPLICATION FOR A PC, OR IF YOU HAVE A PC AT THE OFFICE AND A QL AT HOME, OR JUST WANT TO GO ONE BETTER THAN THE JONES'S, YOU DON'T NEED ANY OLD ANSWER. YOU NEED THE SOLUTION.

THE SOLUTION IS SUPPLIED ON DISK FOR USERS OF EXPANDED QLS. WE PROVIDE IT IN TWO FLAVOURS, BOTH AT A TINY FRACTION OF THE PRICE OF A PC. CHOOSE ONE AND BUY NOW.

**VANILLA.** WE DO NOT SUPPLY YOU WITH MSDOS. YOU EITHER BUY YOUR OWN COPY OF IT - EXPECT TO PAY ABOUT £85.-\* OR UTILISE ONE WHICH YOU ALREADY OWN (PLEASE REMEMBER THAT SOFTWARE PIRACY IS THEFT).

**CHOCOLATE.** WE SUPPLY YOU WITH ABSOLUTELY EVERYTHING YOU NEED. THAT INCLUDES A BRAND NEW COPY OF MSDOS V4.0 (THE VERY LATEST BELLS AND WHISTLES VERSION, SO RECENT YOU WON'T EVEN HAVE SEEN IT ADVERTISED AS YET BY MICROSOFT) BUNDLED WITH THE FULL, ORIGINAL MSDOS DOCUMENTATION (NOT SOME HOME-BAKED HANDOUT), SYSTEM UTILITIES AND THE EXCELLENT GW BASIC. THIS IS THE IDEAL PACKAGE.

THE VANILLA SOLUTION COSTS £ 79.95

## TECHNICAL AND GENERAL SPECIFICATION

\* FULLY AUTHENTICATED IBM PC + MSDOS AUTO EMULATION \* HEAVILY OPTIMISED 100% MACHINE CODE OPERATION GUARANTEES ABSOLUTELY MAXIMUM SPEED \* AN INCREDIBLY ACCURATE FULL CGA-STANDARD MULTI-COLOUR GRAPHICS AND TEXT EMULATION (BOTH OF THESE AVAILABLE BOTH DIRECTLY AND VIA BIOS), WITH HOSTS OF SCREEN MODES SUPPORTED, AND NOT JUST MDA (MONOCHROME, TEXT-ONLY AND THEREFORE UNSUITABLE FOR MOST NON-TRIVIAL PROGRAMS) \* THE EMULATOR IS INHERENTLY MULTITASKING, PERMITTING (IN ADDITION TO SIMPLE OPERATION) BOTH QDOS+MSDOS MULTITASKING AND MSDOS+MSDOS MULTITASKING - THIS MAKES THE SOLUTION MORE POWERFUL THAN TOP-OF-THE-RANGE PCs, AND PROVIDES POTENTIAL LIMITED ONLY BY YOUR IMAGINATION (DP PROGRAMS LIKE THE EDITOR SPECIAL EDITION CAN MANIPULATE ANY MSDOS FILE, WHATEVER ITS SOURCE \* BIOS IS REWRITTEN IN UNBELIEVABLY EFFICIENT, HIGHLY LINEARISED (CAREFULLY AVOIDING ALL UNNECESSARY SUBROUTINE CALLS), OPTIMAL 68000 CODE \* COPYRIGHTED UNIQUE INTELLIGENT PREPROCESSING SYSTEM, WHEREBY ON ENCOUNTERING SELECTED 80X86 INSTRUCTIONS A FAST-FETCH OF ITS LOGICAL SUCCESSOR IS PERFORMED, AND AFTER ANALYSIS OF THE COMPLETE INSTRUCTION GROUP ALL UNNECESSARY FLAG SIMULATION IS FILTERED OUT AND ALL UNPRODUCTIVE INTERMEDIATE ACTIVITY IS SUPPRESSED, DOUBLING EMULATION SPEED AND GIVING THE SYSTEM THE PACE OF A COMPILER RATHER THAN THAT OF A MERE INTERPRETER \* A MASSIVE 667K IS AVAILABLE TO MSDOS (MORE THAN ON MOST PCs!) IF YOU HAVE TRUMPCARD, 420K IF YOU HAVE A 512K EXPANSION, ETC \* ENHANCED MODE GRAPHICS SUPPORT, LIMITED ONLY BY INHERENT QL SCREEN RESOLUTION \* WORKS WITH ANY NON-OBSOLETE MSDOS VERSION - BUT REMEMBER THAT MOST GOOD PC PROGRAMS NEED A RECENT MSDOS VERSION (IT IS THEIR RESTRICTION, NOT OURS) \* READ, WRITE AND FORMAT PC/MSDOS DISKS, WITH FILE TRANSFER TO/FROM QDOS \* WORKS PERFECTLY WITH ALL SOFTWARE THAT DOESN'T MAKE HARDWARE-SPECIFIC CALLS, AND COPE (BY EITHER IGNORING THE ERRANT INSTRUCTION OR REPORTING IT TO YOU - YOU DECIDE WHICH) EVEN WITH MOST NAUGHTY ONES (USUALLY GAMES WHICH TAKE SHORTCUTS TO ACHIEVE SMOOTHER SCROLLING, AND WHICH WON'T RUN ON MANY PCs AS A CONSEQUENCE) \* SCREEN, KEYBOARD (+DRIVER), FLOPPY DISK, COMMS + SERIAL PORTS AND PRINTER (YOU CAN DECIDE WHAT DOES/USES WHICH) ARE ALL SUPPORTED AND ARE RECONFIGURABLE, GIVING ABSOLUTE FLEXIBILITY \* SELECTABLE 80X86 TRACE MODE AND TIMER INTERRUPT \* NOT ONE BUT TWO IBM CHARACTER SETS \* BETESTED BY A MIXTURE OF EXPERIENCED AND NOVICE USERS - THE SOLUTION HAS BEEN CHECKED ON HUNDREDS OF THE WORST PROGRAMS WE COULD LAY OUR HANDS ON \* NO NEED TO SCROUNGE AN MSDOS COPY (WITH THE WORRY THAT YOUR ONE WON'T BE SUITABLE) \* RELIABLE, TRUSTWORTHY TECHNOLOGY FROM DIGITAL PRECISION (DP), THE LEADING QL SOFTWARE HOUSE! WE AT DP GET SO MUCH CONGRATULATORY FEEDBACK THAT WE COULD (AND HAVE - REMEMBER PAGES 18/19 IN THE SEPTEMBER '88 QL WORLD ?!) WALLPAPER A LARGE HOUSE WITH THE THOUSANDS OF LETTERS OF PRAISE WE'VE RECEIVED. WE ADVISE YOU NOT TO TRY TO CUT CORNERS BY GETTING APPARENTLY CHEAP ALTERNATIVES, IF YOU MUST IGNORE OUR ADVICE, PLEASE DON'T SEND US AN I-WISH-I'D-GOT-THE-DP-ONE-IN-THE-FIRST-PLACE TYPE LETTER LATER ON WHEN YOU EVENTUALLY ORDER FROM US: WE GET LOADS OF THESE ALREADY, AND WE'VE RUN OUT OF ROOMS TO WALLPAPER. SO GET SMART, DON'T GET PROBLEMS. GET THE SOLUTION. All trademarks acknowledged.

THE CHOCOLATE SOLUTION COSTS £129.95

### IMPORTANT NOTICE

QL WORLD, enhancing its very considerable turnover by cutting out newsstand sales (where most of the profit goes to the vendor), is going subscription only from March. We will continue to advertise in the magazine. We believe 1989 will be the best-ever year for QL software and hardware, with many new exciting and important products planned by ourselves and others.

Accordingly, we advise you to do BOTH the following IMMEDIATELY:

- (1) Take out a subscription to the magazine - either UK or OVERSEAS. NOW!
- (2) If you have never received anything in the post directly from us, and are not placing an order now, then we will not have your details on our Database. In this case (not otherwise) post us (or phone in - but we prefer you to write) your name and address: mark the envelope "Database Update". This will ensure that we can and will keep in touch.

THE QL IS STRONGER THAN EVER BEFORE. LET US TOGETHER TAKE IT INTO THE 1990s.



## THE EDITOR SPECIAL EDITOR

### Text handling par excellence

These are the ultimate file-handling programs for your favourite computer. A new concept in hyperspeed information manipulation, Editor serves as a word processor, printer driver, database and programming environment. You name it, Editor does it. Its logic and consistency of approach put Editor in a class of its own. Special Editor only works on expanded machines – it takes the QL to its very limits, and is ideal for handling documents, manuscripts, books etc.

## TURBO

### The supreme SuperBASIC compiler

Turbo is compatible with the entire syntax of SuperBASIC. Its friendliness, features, tolerance, flexibility and fast operation are legendary. TURBOcharged programs run up to 100x faster than BASIC ones. TURBO is supplied with a general-purpose, two-hundred command toolkit.

## LIGHTNING

### The complete QL speed enhancement system

Lightning accelerates the QL's text, graphics, screen and mathematical operations by mind-blowing factors of up to 14x. No technical knowledge or programming is required. Simple to use, but with many bells and whistles - 78 fonts, new nul device, user-variable precision, character-drain, modechange suppression...

**PRICES  
SLASHED!**

## DESKTOP PUBLISHER DTP SPECIAL EDITION

These programs provide wysiwyg document design, with a huge number of RAM and device resident lo-res and hi-res fonts, continuously variable X & Y magnification, compatibility with Editor, Quill and Eye-Q, a preview function, comprehensive graphics facilities, flexible cut & paste, pixel justification etc. Both versions require expansion RAM, and Special Edition is disk only. The Special Edition is supplied with a free copy of grafiX, the well-known PDQL printer controller. Both versions work best with Eye-Q and Editor.

**PRICE  
SLASHED!**

## DIGITAL C

### A C compiler for beginners

Truly portable, but carefully tailored and optimised to produce fast, concise code on the QL. No cash crop conversion this!

## SUCCESS

### The supreme CP/M Code Emulation System

Converts the QL into a fully compatible CP/M operating environment. No ifs, buts or almos. Run thousands of the world's favourite programs on your QL NOW! Emulates Z80 too!

## IDIS

### The first intelligent disassembler for the QL

The ideal disassembler for beginners – with IDIS you do not need to be an expert to crack other people's programs

For full program  
specifications refer to  
the July 1988 QL World

£10 off The Editor and/or ACT Special  
Edition if bought with anything else

## 3D PRECISION

### A dream to use

Provides every facility for swiftly designing and manipulating three dimensional objects in real time. You have complete control over perspective, magnification and position, and you can create lines, surfaces, objects and worlds (groups of objects). Needs extra RAM.



## MEDIA MANAGER SPECIAL EDITION

**NEW**

Media Manager is a very early DP release with oodles of functions. However, the design and user-friendliness of the system was not quite up to the standard of Digital Precision's other programs. Consequently, we have spent a great deal of time rationalising and improving Media Manager, making it much easier to use, much faster, more powerful and more flexible. The result – Media Manager Special Edition. A classic release, a must for everyone who uses the QL to store things of value. Not that MMSE is just for when things go wrong – it is a manager too, with a host of medium control functions. And if you can program, we've supplied SuperBASIC extensions for every conceivable device control. Additional features include the facility to read from, write to (and even format) IBM MSDOS/PCDOS disks and Atari TOS disks – two-way access both at sector-level and at file-level.

## MORE SUPER SPECIAL DEALS

We want to encourage more and more users to experience for themselves the stunning acceleration imparted to the operation of all Digital Precision programs (and everyone else's programs) by LIGHTNING. Programs that particularly benefit are editing/word processing programs, databases, graphics/CAD programs, desktop publishers, compilers, games and programs with a high computational overhead (like astrological systems). We will give a 10% discount, additional and supplementary to all other discounts, for any purchase of two or more programs, if one of them is LIGHTNING. This discount applies to the total price – it is not just 10% off LIGHTNING but 10% off the lot!

## DIGITAL C SPECIAL EDITION

**NEW**

Digital C Special Edition has all the features of the much-acclaimed Digital C System, plus:

- ★ Direct access to all QL traps and vectored utilities is provided.
- ★ Machine code has now been used for writing all the standard library functions – this maximises execution speed and minimizes code size.
- ★ Huge programs can be compiled – no 64k or other code size limit.
- ★ Many new fast library functions including SCANF are supplied.
- ★ User selectable size optimisation gives the choice of efficient 16 bit and flexible 32 bit addressing.
- ★ Long Integers are now supported.
- ★ Long pointers are now supported.
- ★ Long constants in octal, decimal and hex are now available.
- ★ User friendliness is improved.

# PROFESSIONAL PUBLISHER

**NEW**

**Digital Precision is proud to announce an all-new, top-of-the-range desktop publishing system.**

Professional Publisher has all the features and controls you require to produce output of the very highest quality.

Professional Publisher has ALL the features of Desktop Publisher Special Edition, plus the following:

- ★ **Linked windows...** Any number of windows can be 'invisibly' connected in a sequence determined by you so that text flows from one automatically into the next. Windows can be of any shape.
- ★ **Wraparound graphics...** Any graphic can be placed on a page and text can be made to automatically flow around the graphic. Pixel-proportional spacing and the integrity of columns will be maintained – the graphic can be of any shape and can wholly or partly overlap any number of windows. The user may define any polygon (up to 64 sides) to demarcate the desired border of the graphic, which need not coincide with its actual outline.
- ★ **Full mouse compatibility...** Smiling mouse owners can start smiling! The incredibly silky smooth feel of this system, when either used from keyboard or mouse, has to be experienced to be believed. It comes from our special scrolling and cursor-handling routines, handwritten in machine code. We suggest you use the system from the keyboard first, and then go in for a mouse if you feel the need to.
- ★ **Style and layout designer** allows you to create any number of layout templates, which contain details of columns, margins, gutters, breaks, guides etc. This permits the easy creation of multiple pages.
- ★ **No more fiddling** around with cursor keys for exact positioning – text can be snapped into guides.
- ★ **Full compatibility** (and now absolutely hassle free!) with ASCII files (say from Editor Special Edition), Quill.doc files and Quill.lis files – now with complete preservation of paragraphing, indentation, tabulation, superscripting, subscripting, italicising etc. Any size files can be handled – Pro Publisher has an on-screen skip/preview/chunk routine!
- ★ **Huge range of fonts supplied** (hundreds) – memory resident and disk resident – with sizes ranging from 8x8 to a gigantic 48x48! User-adjustable (pixel accuracy) descender position, character spacing, X and Y axis widths etc. In addition there are 26 graphic fonts!
- ★ **Page dimensions specifiable** either in pixels or millimetres – up to an enormous 960x1600 pixels and down to a tiny 48x48 pixels. Inch and mm rules provided.
- ★ **The whole of the ASCII set** is now supported – this is very useful if you want lots of special symbols or if you want to support non-English characters.
- ★ **Fingerprinting** is supported.
- ★ **A virtually infinite selection** of fill textures, with font patterns, graphics, or whatever you choose.
- ★ **There are 256 paint brushes**, with a unique programmable overlap (1/3/9 pixels) function.
- ★ **Automatic shading** and grey scale conversion of colour screens.
- ★ **Automatic Interpolation** of graphics and fonts.
- ★ **Automatic bending/stretching/resizing** of graphics.
- ★ **All Boolean functions** supplied for brushes, fonts, graphics and freehand drawing – AND/OR/XOR
- ★ **Cut & paste** is supported both TO AND FROM the page itself, saved screens and compressed screens – this incredible support of all permutations gives unheard of flexibility!
- ★ **Full support for kerning** and pixel justification, including user-definable % line usage, user-definable maximum and minimum inter-character spacing and inter-word spacing (preventing the ugly spread of characters or words on a line when the first word on the next line is a very long one), preselectable/defaultable auto-hyphenation, auto-indent control, dropcaps, left/right/centre/off justification etc. etc.
- ★ **Walkdown menus** (selections either by a single keypress or by a moveable bar, you decide), context-sensitive help, very greatly enhanced user-friendliness.
- ★ **8/9/24 pin printers**, laser printer support, output any part of the page, individually vary X and Y axis magnification, user-selectable print density and number of passes.
- ★ **Professional Publisher** is supplied on disk for expanded QLs.

## IDIS SPECIAL EDITION

All the features of the much-acclaimed IDIS Intelligent disassembler – but even more intelligence!

This remarkable Special Edition, Only available to users of expanded QLs, has the amazing ability to recall earlier decisions while in a 'trial' disassembly mode. This greatly reduces the amount of help the system requires from you – usually to zero! Also, no longer will you need to answer the same (or similar) question more than once. Also added are facilities for dumping in hex/ASCII, default responses to startup interrogation, automatic resequencing of absolute addresses, non-destructive windowing etc.

## UPGRADES

To upgrade from one version of a program to a later version of the same program, send us the cartridge/disk and £10. Except in the case of Special Edition Editor owners upgrading to the latest Special Edition Editor, do not return your manual to us.

To upgrade from a program to the Special Edition of the program (say from the standard Editor to Special Editor), send us the cartridge/disk, manual and the difference in current advertised price between the two programs, plus £10. For this purpose we will consider Professional Publisher to be an upgrade from the Desktop Publishers and Professional Astrologer to be an upgrade from Super Astrologer.

For example:

- ★ To upgrade DIGITAL C to SPECIAL EDITION C send us £40 (£49.95-£29.95+£10)
- ★ To upgrade an early SPRITE GENERATOR to the current version send us £10

**PRODUCT AVAILABILITY ROSTER >>>>**  
**Everything available NOW except:**  
**Media Manager SE: 25th Jan 1989**  
**THE SOLUTION: 25th Jan 1989**

**NEW**

DIGITAL PRECISION



# MEDIA MANAGER

Manages and controls disks and cartridges, transfers from/to alien formats, recovers corrupt/lost data.



## PROFESSIONAL ASTROLOGER

The best, most comprehensive astrology system in the world: suitable for beginners and experts alike. **Professional Astronomer** is a companion program of equal quality. **Super Astrologer** is a much simpler program and a lot of fun.

## ACT SPECIAL EDITION

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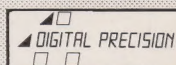
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# OPEN CHANNEL

Open Channel is where you have the opportunity to voice your opinions in *Sinclair QL World*. Whether you want to ask for help with a technical problem, provide somebody

with the answer, or just sound off about something which bothers you, write to: Open Channel, Sinclair QL World, Greencoat House, Franics Street, London SW1DG.

## Speedscreen

John Silk made a number of mistakes in his review of *Lightning* in the September *QL World*, particularly when comparing it to *Speedscreen*. He said that *Speedscreen* is incompatible with SEDIT block graphics. In fact, the first versions of *Speedscreen* printed block graphics one pixel out of place, in certain colours, but this minor quirk was fixed seven months ago, long before *Lightning* was launched.

Silk implies that different versions of *Speedscreen* are needed for each QL model. This is untrue, although we supply eight versions of *Speedscreen* to our customers. All work on any QL but they

vary in size and features, so that users can pick the one which gives the best performance on his system.

Silk's 'comparison' timings are misleading, because he tested the slowest of the eight RAM versions of *Speedscreen*. He used version F, designed to suit desk-top publishing programs, rather than version N, which is noticeably faster when using *The Editor*, Psion programs and most other packages and uses about half as much RAM and *Lightning*.

Independent tests contradict Silk's results. CST tested *Lightning* and *Speedscreen* head-to-head when developing the new Thor. David Oliver found *Speedscreen* faster on all his tests, which is why CST chose *Speedscreen* as the

display upgrade for the Thor XVI.

Silk points out that ROM-based routines typically run faster than RAM-based ones, but he does not mention the fact that *Lightning* will run only in RAM, whereas *Speedscreen* is available in ROM or RAM.

The QL RAM version of *Speedscreen*, which he compared directly to *Lightning*, is £10 cheaper.

**Gus Chandler,**  
Sales director,  
Creative CodeWorks.

## V3 Calculator

Because of a continuing requirement for costing Imperial units from their metric equivalents, I recently incorporated this facility into my original version of the QL Convertor-Calculator Microdrive Exchange program number 34.

I have sent this enhanced version (Ver. 3) for Microdrive Exchange users.

The main attraction in running this addition is the ease of use, the time-saving involved and, without restriction to currency type, one may assume DMarks, Francs, Lire, DKr, Dollars and so on. I hasten to add, however, the inconvenience of large monetary values being output in exponential form.

There is a substantial selection of metric and Imperial units from which to work and by moving a cursor to the desired units one enters only a quantity and a cost; Unit costs for all related measures can then be displayed. Typical examples, for instance, might be to get the price of a square metre of land or say floor space if 3.593 acres costs £44,000 or the price of a square foot if 4.8 hectares costs £57,000. One's interests may be in more palatable commodities and

may take the form of, say, the price of a cubic centimetre of Scotch if 834 gallons costs £1,717.

Other units are accessed easily on-screen with simple cursor control and all values can be input/output in either of the forms — Imperial/Metric, Metric/Imperial, Imperial/Imperial, Metric/Metric.

There is also improvement to the units incrementing mode, the Reverse polish Calculator, and to the output of conversion tables (Ver. 1). Customising the screen colours to one's taste now requires only a tap of the spacebar.

**E. Bamber,**  
Glasgow.

## Deregulated

During October I bought a Q-Power regulator from Power Computing Ltd. The device arrived in two days and I attempted to fit it. Unfortunately, the fixing screw hold was so far back on the circuit board that the regulator would not fit. Even if it had been possible to fit it in the space suggested, it appeared that the nylon connecting socket underneath would have prevented it being screwed down.

I returned the regulator, describing the problem and my money was refunded. That does not solve my problem. I read in the November issue that at least one person has installed a Q-Power regulator, so did I receive an ill-fitting model? Is my QL — an AH ROM version now with a JS ROM after being repaired by Sinclair after about a year — of unusual construction, or is there a way to adapt a Q-Power regulator to make it fit?

**R. Greenwood,**  
7 Brookeville Ave.,  
Hipperholme,  
Halifax,  
Yorkshire HX3 9DX.

## Editor's notebook

As you may have noticed from our cover this month, Dennis Briggs of Adman Services has contributed replies to some of the more specialised queries sent to *QL World*. I do not think that Dennis often has people phoning him up to ask what colour his eyes are! But true to form, he came up with the answer. The shirt and tie are our responsibility. The man himself is not to blame. There will be more Briggs replies next month.

If there are others among our readers who have the information and the inclination to offer a clinic service on specialised or general topics, drop us a line; and I would very much like a user report on the QLAF game Tower of Valagon — around 500 words at our usual rates. Write first if you are interested.

You will also have seen that, as of Spring 1989 *QL World* will no longer be available from newsagents, but by subscription only. Many readers have already opted for subscription, finding us hard to catch on the newsagents' shelves. Cutting the distribution link out of the chain will make *QL World* easier to produce and deliver; we will be aiming to stick to a regular format and generally improve our service to readers. Predictability is a fine thing in its place.



## 520ST-FM SUPER PACK



The Atari Super Pack is ideal for you if you want to get off to a flying start with the best in entertainment software. The Pack includes a 520ST-FM with 1Mb RAM, a built-in 1Mb disk drive, over £450 of top games and a joystick. If you buy the Super Pack at Silica Shop, we will add our own ST Starter Kit (worth over £200), Free Of Charge. Return the coupon for details.

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## Precision versus power peril

Users who have suffered from electricity board contractors cutting off the local supply without warning for maintenance work, now apparently an increasing problem, should consider battery back-up or an uninterruptable power supply of some kind.

Frequency Precision is marketing an upgraded version of its uninterruptable power supply, released in 1987 — re-

viewed in *QL World* October 1987. The Frequency Precision UPS 50 operates as a battery back-up and supply cleaner to provide power during severe electrical interference or periods of mains failure or cut-off. As well as enabling the QL to operate from a poor mains supply, the UPS 50 incorporates red and green LEDs to indicate the supply status and a switchable audio alarm to indi-

cate loss of mains supply.

The unit operates on direct current, making use of the existing QL power supply. Installation is simple, and the unit is powered by nickel cadmium batteries, charged continuously and used to remove interference and fill supply breaks from a few milliseconds up to a maximum of 15 minutes. A regulator in the unit reduced the voltage supplied to the QL to 8 volts, eliminating overheating in the QL regulators.

The UPS 50 costs £57.50 inc. VAT and carriage, from Frequency Precision Ltd, Hillsview Aller Road, Dolton, Devon EX19 8QP. Tel: 0805 4381.

## SuperBasic can move

Sinclair SuperBasic programs can now be compiled to run on the Atari ST and Amiga, following the release of HiSoft Basic for those computers. The 68000 version of HiSoft Basic has been developed in the last two years, under license from Simon Goodwin, author of *QL Supercharge*. HiSoft Basic compiled itself from an expanded version of the original

Supercharge parser, written in QL SuperBasic.

Features like SElect, REpeat loops, reference parameters and procedure-calls are fully-supported. New windowing and graphics commands have been written to suit the machine in question.

HiSoft Basic is said to support many extensions, like double-precision variables, long integers and undimensioned strings of any size which will fit in memory. The compiler also recognises the syntax of Microsoft QuickBasic and AtariBasic, so a few SuperBasic keywords have been re-

named to avoid ambiguity.

HiSoft Basic produces faster code than any other Basic compiler on the ST, outperforming the GFA compiler and Fast Basic on Byte and PCW benchmarks. Compiled programs are directly-executable and royalty-free. The Amiga version produces multi-tasking code and can share library routines between tasks.

HiSoft Basic costs £99.95 on the Amiga or £79.95 on the ST. For further details contact HiSoft, The Old School, Greenfield, Bedford MK45 5DE. Tel: 0525 718181.

## Adventurers on screen

Michael Jackson of Burton-on-Trent can supply copies of *QL Adventurers' Forum* on 3.5in. discs. Jackson has added a *Q\_Liberator* compiled program to the discs so that the magazine can be read on-screen as an alternative to loading to Quill and printing-out.

Richard Alexander of CGH Services will continue to supply cartridge, printed and 5.25in. disc versions of the magazine. The 3.5in. version will cost £3.50 including postage and disc. This is not a money-making venture, Jackson stresses, but programs will be checked as far as possible for bugs and updates issued where any mistake is found. He has also supplied information updating prices and other out-of-date facts in earlier versions.

Contact Michael Jackson with SAE for information at 17 Stanhope Road, Swadlincote, Burton-on-Trent DE11 9BQ.

## Laser service moves

Taylor Made Systems has moved its offices again since the change of address reported in last month's *QL Scene*. The new address for laser printing services from many QL DTP files is 71 Wellington Close, Hepworth Way, Walton-on-Thames, Surrey KT12 1BB. Tel: 0932 221854.

## Astracom offers money off

Astracom is offering prospective bulletin board system operators who require the Astracom modem to operate the QVIEW viewdata system a £20 discount on the list price. The discount applies to modems ordered direct from Astracom. For a limited period, Astracom is also giving a free seven-day trial of the QVIEW system. The trial is implemented by paying for QVIEW with a post-dated cheque. If the software is returned undamaged within seven days, the cheque is destroyed.

The QVIEW viewdata system needs a QL with a minimum of 256K of memory and the Astracom 1000 model — Hayes or native. Features of the software include a multi-tasking page editor and bulletin board, fast page access to RAM, concealed or visible keywords, remote editing for callers, page editing with caller on-line, compatibility with the QJump QIMI mouse interface and others, including dial-out viewdata and VT53 terminals planned for the near future.

For more information call Astracom on 0480 412884 or leave a message on Atravachron on the same number, 24-hour ring back viewdata via ★qview# or ★sysop#. The software is available on 3.5in or 5.25in 720K disc. Cartridges by special order.



## Flightdeck takes off

Deltasoft, a new Bristol-based software house, has released a flight simulation, *Flightdeck*, for the QL. The program, written mainly in machine code, allows you to fly a twin-engined passenger jet airliner and provides high-resolution, shaded 3D views of the world outside. A database of 25 major U.K. airports and more than 200 navigational beacons is supplied, along with a customisation program which allows the user to re-define his own world.

Although the absence of visual texture and physical motion tend to relegate home flight simulation into the games league, the level of detail and accuracy in *Flightdeck* would, says Deltasoft, also make it useful for preliminary instrument training for pilots. The aircraft is fully-equipped with the necessary navigation equipment — twin VHF omnidirectional radio range and distance-measuring equipment, automatic direction finding and an instrument landing system.

*Flightdeck* has been developed by a team comprising two pilots, an air traffic control officer and a geophysicist — for

## CST pledge

Hellmuth Stuen of Dansoft and Thor International have been in touch with *QL World* to talk about the future of CST and Thor International in Denmark. After talking briefly about the deteriorating relations, both business and personal, in David Oliver's family, Stuen apologised to customers who have placed orders with CST and its agents for the delay in meeting orders during the move from England to Denmark.

Stuen said that he refrained from contacting *QL World* until he had definite news of Thor progress but that he was able to assure *QL World* that the last paid customers would have their machines despatched within a week of the November convention.

"We have enough Thor 8s and 16s to last us until the third week in December, when

the first 200 Danish machines will roll out," Stuen said. "We should have 500 out by mid-January and cross fingers for much larger numbers for export to the East from February/March, 1989." By 'larger numbers', he said, he meant more than 5,000 units.

Thor International has now engaged "a reputable Danish firm to produce the computer as one of the 14,000 instruments it produces," as well as assisting with marketing ideas. The advantage, Stuen said, was that the firm was experienced in production and distribution and would take the production of the Thor in its stride. "We now have the financial backing we need," he said, adding that it had cost more than £50,000 to re-locate CST and begin production.

Concerning people with outstanding accounts with CST,

Stuen said that all creditors would be contacted by the end of November. "We will not allow a single cent of legitimate CST debts to be outstanding, because we do not want the Thor reputation to suffer," he stressed. "We think we have a good machine. We would like to see hundreds of companies producing for the QL and carrying the flag." He was delighted, he added, to see nine companies exhibiting only products for the Thor at a QL Day in Hasselt, Belgium.

The CST address is now Cambridge Systems Technology, Lundeskovsvej 5, 1, 2900 Hellerup, Denmark. Tel: +45 (0)1 61 24 22. Fax: +45 (0)1 62 88 05. The Dansoft address is Dansoft, Raadhusttraede 4B, 1, 1466 København K, Denmark. Tel: +45 (0)1 93 03 47. Fax: +45 (0)1 93 82 92, and not as reported erroneously in a PDQL advertisement. Thor International may be contacted at either address, or by telephone at +45 (0)1 93 03 05.

the down-to-earth approach. It is available on 3.5in. disc or Microdrive cartridge for £22.95 inc. p&p.

Deltasoft has also released a flight planning program for the Amiga or QL for use by private or commercial pilots.

In *AMD Airplan*, routes can be set up and stored as data files. Just before leaving for the

airport, the pilot types-in the wind speed and direction and the program calculates the required magnetic headings, ground-speeds and estimated time of arrival. The information is printed-out on a comprehensive flight log, including runway details, navigation/communication frequencies and diversion information.

The program has been developed by an air traffic control officer and is written in AmigaBasic/QL SuperBasic to enable users to customise it to their needs. It is available on 3.5in. disc or Microdrive cartridge for £14.95 inc. p&p.

Contact Deltasoft, 11 Dumaine Avenue, Stoke Gifford, Bristol BS12 6XH.



## Mega extras

Mega-Toolbox by Compware has 12 new commands incorporated and enhancements to a further 13 of its existing commands — ACTIVE-Q; CLEAR-Q; PREFETCH — which can now manipulate any kind of queue; COPY3/8X — tunable copy rate; FN-KEY; KEY — handle more key com-

binations; FPRINT-X; PRINT-X — many new control codes; VAR-TYPE — handles uninitialised variables; and others.

New commands include ENTER-W, FPRINT, FREEZE-JOBS, KEYBUFF-ADDR, MAKE-INPUT, MID\$, PROPER\$, QVECTOR, RESTAT-JOBS, XCOUNT, XSUBSTR and XPRINT.

QL Mega-Toolbox V1, 5 costs £29.95 inclusive from Compware, 57 Repton Drive, Haslington, Crewe CW1 1SA. Tel: 0270 582301.



For all word-processing tasks, from daily correspondence to articles, theses, books or newsletters, the text<sup>87</sup> system is the vital upgrade for any expanded QL.

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founttext<sup>88</sup> is the graphic printer driver for text<sup>87</sup>. It provides desk-top publishing facilities with thirty high-quality founts (not ordinary QL founts) in different sizes (up to 72 pixels high) and styles for Epson compatible dot matrix printers. Dedicated 24-pin version available.

founted<sup>89</sup> is the new graphics editor for founttext<sup>88</sup>. It allows you to create new founts of up to 84x96 pixels per character or capture saved screen images for insertion in your documents.

24<sup>88</sup> is a set of state-of-the-art text-mode printer drivers for Epson and NEC 24-pin printers.

text <sup>87</sup>	£45	founttext <sup>88</sup>	£25
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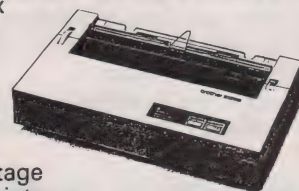
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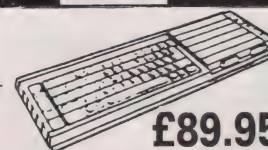
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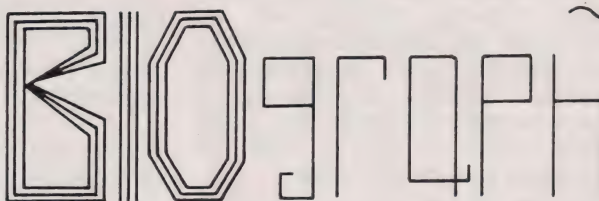
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**T**wo years ago I began writing a book on the Spanish Armada, full of details of Spanish galleons, Plymouth Haven, weapons and supplies and with many places between London and Cadiz. For more than a year I typed facts and comment on my trusty QL, a reliable model, with an AH ROM, which crashes only on odd occasions — sometimes very odd — but is usually well-behaved and stable.

I used *The Editor* as a word processor and although my good-natured machine

how would I manage it? The Editor manual gives an example of indexing but it assumes that the text to be used has sub-headings and takes those sub-headings as the entries for the index. Unfortunately, my text lacked sub-headings and I was not convinced that such a method would give me what was required.

### Soldier, sailor, ship

After some thought I decided to work on names — of sailors, of soldiers, of politicians, of places and of ships. That meant a need to collect words with capital letters, which would suffice initially.

At that stage I wrote a series of commands to take out words in the text which started with capital letters. Of

In the end, I worked out my system but it proved to be complex and in future I shall probably not employ it for anything longer than 50 pages. It is interesting, however, both to show how the capacities of Editor in handling text and also in the event of anyone finding a series of commands which can do a job as complicated as this in any simpler way.

To start, I found a method of eliminating the chapter references — which came beneath a line of dots at the end of my text — and also of omitting certain lines in the text which were there merely for spacing. As they were numbered and starred, to remove them was simple. Figure one did the trick.

By now Editor provided me with the possibility of remarks in command programs which did not affect the commands and also of including noises. Those buzzes, although restricted in scope and sound, proved very useful during preparation of the commands, for showing which stage the program had reached — see figure two.

Other people's common words may prove different from mine. The foregoing list is only a selection and given as an example. More pertinent for me, perhaps, was the long list of names I needed to take out — the Drakes, the Howards, the Raleighs and Philips. Virtually all the Christian names had to be taken out and many of the places. It was no use to pick up Spain, England and Devon 100 times for the index. That would have confused, not helped — see figure three.

After working on the text in that way it was ready for the names in chapter one to be garnered with commands to look for capital letters. Again note the \*; this was a signal I had used to indicate the start of my chapters. If it is missing, or in the incorrect place, things go wrong. Otherwise these commands collect all the words beginning

# ARMADA INDEX

When John Roberts took on the job of organising the Armada, he called up his QL to help him do it.

stood up well to the task, it did not like having to handle files more than 25 pages long, or much beyond 1,000 lines, so I kept my chapters below that length — halving one of them to ensure that it was not excessive — and I wrote the chapters to disc regularly. In the end all was well. My text was rewritten, shunted and corrected, chopped here, changed there; finally it was as well as I hoped it should be.

Thus the first year had been spent typing, re-typing, checking and re-checking the text, which then consisted of more than 250 pages divided into 14 chapters. It had been a busy time and the book was really completed only a few months before the start of 1988, the anniversary year for the Armada.

Next I decided on an Index. It would be a thorough-going affair, including all the main facts. Such things as might be found at the head of this description, or HOWARD, Charles Lord, High Admiral — cabin decorated in green and white silk hangings. Henry, Lord Bindon — derogatory remarks about his wife. So how was I to construct it?

### Reduce the graft

It seemed obvious that some mechanical system of retrieval of basic facts would be most useful. There was no way of avoiding the intelligent selection of entries to be indexed but surely a good program would enable me to reduce that hard graft to a minimum. My lightning speed moron would, I hoped, do most of the work before I started the difficult pieces.

Clearly, Editor would be the ideal way to extract the information from the text but

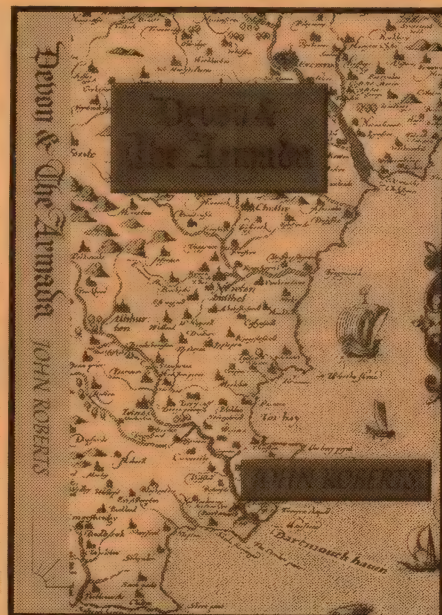
course, I was then confronted with a host of words which began sentences which were often not names but those frequent and unhelpful words like 'The', 'A' and 'Many'.

More thought was required. I evolved a series of commands for ridding my text of those inconvenient and surplus words before looking for my quarry — the names of my seamen, ships and places. Then I discovered a need to take out the common names. Drake appears on almost every page of some chapters and Philip II of some others. So a command to eliminate them and avoid excessive duplication was essential.

It took me a long time to write a command to collect a word from the text, take it to the end of the document and save it complete in the sentence which gave its context. Sometimes even that was insufficient but generally it would suffice. I soon found that even with a mere 20-page document I was in danger of running out of memory if the commands continued for too long.

It proved necessary to find a way of collecting the information for each name, perhaps five or more entries in a chapter, saving it to a separate file and then collecting it afterwards. This became a laborious business, made worse by the complications attendant on constructing the commands while learning exactly how to use the powerful facilities of Editor.

At the start of my labours, block commands in Editor applied to lines; only as I completed my task did I have the latest edition which permits one to move smaller lengths — words and phrases of less than a line. That helped to make things neater.





```
. ChapterPrep_cmd - to prepare chapter as Worktext
b fcb'.....' btl bs b be bd
t fc'ONE' cw ec' '*' n
rp fc.ONE. d
t fc' *' n rp ec' '*'
t fc' *' a/ChapPrep_cmd completed / (bz) n bz
```

Figure 1

```
. Commonword_exchange
t rp fcw(/A/-/At/-/An/) dw bz
t rp fcw(/By/-/But/-/Being/) dw bz
t rp fcw(/Each/-/Every/-/Early/) dw bz
t rp fcw(/For/-/Far/-/Four/) dw bz
t rp fcw(/He/-/How/-/Had/) dw bz
t rp fcw(/In/-/Its/-/It/) dw bz
t rp fcw(/Really/-/Rather/-/Real/) dw bz
t rp fcw(/Such/-/Six/-/Seven/) dw bz
t rp fcw(/That/-/The/-/This/) dw bz
t rp fcw(/With/-/When/-/What/) dw bz
t rp fcw(/Who/-/Why/-/Where/) dw bz
b a/ Commonword_exchange completed/
```

Figure 2

```
. Commonnames_exchange
t rp fcw(/Assize/-/Admiral/-/August/) dw bz
t rp fcw(/Dartmouth/-/Exeter/-/Exe/) dw bz
t rp fcw(/Elizabeth/-/England/-/Essex/) dw bz
t rp fcw(/General/-/God/-/Grenville/) dw bz
t rp fcw(/Judge/-/Justice/-/July/) dw bz
t rp fcw(/Tavistock/Tawstock/-/Tiverton/) dw bz
```

Figure 3

```
. This is the ABC section of 1Allcaps_cmd. for Worktext
t f' *' n rp cp p d btc
b a/command line 1 completed/
t btc i/ /
rp 5(t f' *' fc'A' bs fc' ' be n sm t bm cm ) t i/ 1 / bz n (bz)
b a/command line 2 completed/ b
rp 5(t f' *' fc'B' bs fc' ' be n sm t bm cm ) t i/ 1 / bz n (bz)
b a/command line 3 completed/ b
rp 5(t f' *' fc'C' bs fc' ' be n sm t bm cm ) t i/ 1 / bz n (bz)
b a/command line 4 completed/ b
fcb' *' p be t bs btl bw.ABC_1set. ; bd
b a/command line 5 completed/ b bz 5d
bz n bz n (bz)
```

Figure 4

```
. Tidy_cmd - to remove spaces before words, etc
rp ec<<
. put space after word
rp ec.1.1, .
. clear brackets
rp fcq'(' dw
. tidy up punctuation
rp ec'.' rp ec',' rp ec'/'/
rp ec'/s/ / ; rp ec'!!'1'
```

Figure 5

```
. The X_Cmd - words listed must have no spaces following
btl t bs be bz b
.The next line produces the first line of X
a/ sm b a/ ce ec./ . bi j ce ec./ a/. ce bi j ce ec'1#/ t btc'
. And this produces the first part of the second line
a/bz rp(ecw' bi j bz ce ec'/'/ bi j bz
. And this the rest
ce ec'/'1' fbc'.' cr bs fc'.' cr be n sm b a' ' bi cm)/
. next comes the third line
a/ b fbc'/' bi j bz ce ec'/'1#' btl bz/
. and here is the fourth
a/ bs b be bw./ bm j bz ce ec'/'1_ind. ; bd /
a/ / bz (bz) (bz)
```

Figure 6

```
sm b a/ Axminster1/ a/Axminster1#/ t btc
bz rp(ecw'Axminster'Axminster1' fbc'.' cr bs fc'.' cr be n sm b a' ' bi cm)
b fbc'Axminster1' btl bz
bs b be bw.Axminster1_ind. ; bd

sm b a/ Borough1/ a/Borough1#/ t btc
bz rp(ecw'Borough'Borough1' fbc'.' cr bs fc'.' cr be n sm b a' ' bi cm)
b fbc'Borough1' btl bz
bs b be bw.Borough1_ind. ; bd
```

Figure 7

```
af.Brookel_ind. b
af.Brownel_ind. b
af.Budleigh_ind. b
af.Bugginl_ind
```

Figure 8

with A, B or C, save them to a file named ABC\_1 set on the default device and then delete the words on the Worktext — see figure four.

The successive sections — DEF, GHI and so on — are similar, except that the last, containing four letters but called VZ, has the more triumphant line:

```
b a/ALLcaps_cmd file completed!!!/ bz t
(bz) b bz
```

Each chapter, of course, being a separate text file, must be treated separately, which is both good and bad. Good, because it is more manageable; bad because it takes a good deal of time.

Having collected a long list of names, it was necessary to put them in alphabetical order by sequencing them — easy — and to get rid of some accumulations by means of a: — see figure five.

Plenty of buzzes here to encourage me and tell me how well the program was busily doing its job, because it creates word-finding commands — still on ABC from chapter one — of the following type: — see figure six.

and then sequence again, to obtain a simple alphabetical list for the next stage. These, believe it or not, I call 1ABC\_list and so on.

That done, again modified for chapter one was a set of commands I called with a number corresponding to the number of words listed, e.g., for 12 names the call would be 12(rc.X\_cmd.). Note the full-stop before the final bracket, which is necessary for Editor to recognise the commands: — see figure seven.

They are then collected and saved to disc as 1ABCwords\_cmd and this must continue until all the words beginning with A-Z of chapter one are collected similarly. Then you re-start with the original chapter, as made ready with the ChapterPrep\_cmd and apply this \_cmd file to it.

All being well, you will have a succession of short files being written to the default disc, all named Something1\_ind. You can collect them with such commands as: — see figure eight.

which then become written to a file called 1ABC\_facts; and then you have to work at the brainy part — deciding how to word your entries for the index, for there is no way the brilliant QL can help you decide whether Sir Francis Drake warrants more or fewer entries than the Lord Admiral. You are on your own.

Finally, having amended your \_facts file, write it to a new one called 1ABC\_ind and you are well on the way to getting an index for chapter one. That could still leave you with plenty of work to collate with the other chapters but it has probably given you some good ideas about Editor and its sterling properties. Is there Spanish treasure out there? 'Treasure' is not in the index? Ah, well.



# PDQL

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**Product:** QL Adventurers' Forum  
**Price:** £4 — 4 issues  
**Supplier:** C.G.H. Services, Cwm Gwen Hall, Pencader, Dyfed, Cymru, SA39 9HA. Tel: Pencader Tel: 055934 574.

**H**ot off the press is *QL Adventurers' Forum*, a magazine as close to a QL adventurer's dream as possible. This review deals

with issue 4 of QLAF, before which it was released on Microdrive, with each article being loaded separately as a Quill file, which was awkward, to say the least, particularly if you did not own a printer. It is now released only as a proper magazine on paper.

If you are interested in back issues they are available at the following prices. Microdrive, £1 per issue with your own Microdrive enclosed; £3 per issue without Microdrive enclosed; £2.50 for all three with

your own disc enclosed; £3.50 for all three without your own disc enclosed.

While the QLAF printing quality is not up to the standard of other computer magazines, it is still a well-presented and readable product. QLAF has plenty of articles to offer interest to the reader, such as news and reviews of the latest adventures, hints on your favourite games, plus tips on how to write adventure games. Advertising is kept to a minimum, which means that the 24-page magazine is packed with

information on the given subjects.

In issue 4 there were reviews on a number of adventures, as well as as book review on how to write adventure games. The reviews deal in depth with the plot to each game and mention a few things which you may encounter while on your travels and offers hints on playing the game.

All in all, QLAF is good value and will suit all QL games players, be it strategy, simulation, arcade, adventure, or war games.

# SOFTWARE

## FILE

**I** Phil Jones dons two types of gamer's hat to run through a regular magazine for adventurers and a recently-released package for quiz fanatics

**Product:** Quiz Master  
**Supplier:** Impact Entertainments, 1 Holden Fold, Darwen, Lancs. BB3 0EL.  
**Price:** £15.50.

**I**mpact Entertainments has produced a game by the name of *Quiz Master*. As the name implies, it is a quiz game and I found it very enjoyable to play. Quiz Master starts with a short tune as soon as it is loaded and then a menu is printed.

### Choices

On the menu you are given the choice of having the sound ON or OFF, playing against the computer or an opponent, changing the target scores, changing the skill level and, of course, starting the game.

The target scores are what you must reach to win the game and can be changed from 10 to a maximum of 30. There are

three skill levels, which affect only how difficult it is to play against the computer, with skill level one being the easiest.

### Display

When the start game option has been pressed a very well-presented display is shown displaying the scores, the buzzers, a bar showing the amount of time you have remaining to answer the question and, of course, the question when it is printed.

Quiz Master then starts to print a question, letter by letter, into a window on the screen and you must beat whoever you are playing by answering the question first. If you think you know the answer you can interrupt by pressing the buzzer while the question is being printed on to the screen. If you are playing against the computer, the QL will attempt to answer the question about two seconds after it has been printed on to the screen in full, so you must be a fast thinker to win the game.

When a player presses the buzzer the computer makes a sound and a part of the screen lights in yellow to show which buzzer has been pressed. A pull-down menu is then printed on to the screen which has four possible answers.

The bar on the screen which shows the time remaining to answer the question will then start to go down and the player must select the correct answer by using the up and down cursor keys and space before the time runs out — about four seconds.

If the player runs out of time trying to answer the question the scores will remain the same but, if an incorrect answer is selected, a point is added to the opponent's score, which definitely makes the game much more challenging.

### No chance

If you decide to play against the computer on the highest skill level you must make sure that the computer does not have an opportunity to answer

a question, as it is certain to answer correctly — unlike the easier levels where it is not so clever. There are hundreds of compressed questions in Quiz Master and they are all loaded into RAM with the game, so Quiz Master does not need to access the disc or Microdrive again to print the questions and therefore the user is not left waiting for any length of time for the computer to print the next question.

### Range

The questions in the game range from easy to very difficult, covering subjects such as sport, science, entertainment, history, geography and general knowledge, so there is a wide range of questions to make Quiz Master suitable for everyone to play. Overall I found it enjoyable, judging by the fact that I played it for longer than I needed to do, and the presentation on-screen is to a very high standard, which gives a more professional touch to the game.



# The Printer Report

*In the second part of the QL World collected reader reports on personal printers, we hear about Citizen 120D, Panasonic KX-P1081 and Star LC10.*

## CITIZEN 120D

I bought my Citizen 120D printer four years ago, just after I had upgraded from a Spectrum to the QL. The supplier was DS Enterprises which has now gone out of business. The price of £225 included the Centronics interface, tractor drive, cut sheet feeder and manual. I was also supplied with a copy of Quill with the printer basically installed. This may have been because I went to collect the printer. Currently the printer is advertised for £200 but I do not know whether that includes the interface and other bits and pieces. It proved simple to connect and I am no expert.

### Ribbons

Ribbons are available from Strong Computer Systems at £6 each, although I now have mine re-inked for £2. I use letter quality fanfold paper set up in the tractor drive. This saves constant changing of paper and the cost is only marginally more. This is bought from a local stationery shop in boxes of 2,000 sheets at less than £20.

The manual tells me that the printer will carry-out an amazing number of functions and gives numerous short programs to do them all. The only problem is how in the middle of, say, a Quill document does one insert four lines of Basic to switch on/off, say, italics, reverse, high and so on? It is also possible to program the printer to set tabs, margins, page length and line spacing.

A number of the styles of printing can be set from the control panel — NLQ, italic, reduced — but one can never be certain until printing starts whether or not one has set it correctly. I soon found that I was still in draft when I wanted to be in NLQ. Why do they not indicate the mode by lights?

Eventually, after a very long time, I managed to set up the install program,

utilising unused symbols on the keyboard, so that I could switch to and from NLQ, italics, reverse, high and bold anywhere in the document. This has transformed the operation of the printer in a practical sense, although one now has to resist the temptation of putting in italics or reverse too often just because it is so easy as per Epson on the QL with the following additions to the translates:

^,ESC,r: switches on reverse  
#,ESC,t: switches off reverse  
\$,ESC,t: switches on vertically enlarged  
~,ESC,u: switches off vertically enlarged  
{,ESC,4: switches on italics  
,ESC,5: switches off italics  
[,ESC,x,1: switches on NLQ  
],ESC,x,0: switches off NLQ

Those symbols may be inserted anywhere in the text and do not appear in the printed document. Reverse will work only if the printer is set on draft. If one wants to reverse in a NLQ document, one inserts the symbol to switch off NLQ, inserts the symbol to switch on reverse; at the end switch off reverse and switch on NLQ to continue.

### Expanded

Since I have had the printer I have expanded my system with a Trumpcard and twin discs; this has had no adverse effect on the printer. The printer has a built-in dump capacity so you do not have to wait long before being returned to the screen.

I am very pleased with the printer now that I am able to control most of the functions in a Quill document. It is also used for Abacus, Easel, *Front Page Extra* and the *Small Traders'* pack to produce invoices for my wife's company.

The internal DIP switches I have left alone, as any mention of them in the manual is not very clear and I have no wish to upset the way it works. The only compromise I have had to make was to obtain 11in. paper as A4 was too long for the settings.

It has proved to be completely reliable, so I have no experience of obtaining either spares or service; long may it continue. I would buy another tomorrow if I needed a replacement.

The head office of Citizen is Wellington House, 4-10 Cowley Road, Uxbridge, Middlesex, UB8 2XW.

C. Dodson.

## PANASONIC KX-01081

It has always seemed wrong to me that a simple printer should cost more than the comprehensive QL but in my search for relative value I chose the Panasonic KX-P1081. I have had no cause to regret it. The 1081 is a professional printer, Epson-compatible with a few extra facilities. The RRP was £188 but most advertisers in computing magazines offer enough discount to pay the VAT and buy the Centronics interface and lead needed to connect it to the QL. A serial version of the printer is available as a special but it is better to go parallel once and for all. The normal buffer is 1K, 4K is extra.

The 1081 is substantial — 6kg, 403 x 286 x 115mm. — but arrives well protected in a large box. There are carriage stops for protection in transit; they have to be removed before the printer can be set up; it is then easy to mount the ribbon cassette on the travelling head. The large manual shows clearly how to do this and how to fix the paper-feed guides.

The interface has to be screwed to the back, where it sticks out a little into the paper feed path. The DIP switches are tucked under the head and protected by a transparent flap. Fortunately access is seldom required, as the necessary changes can be commanded from within the program — by "translates" installed in Quill. There is a tough transparent cover which clicks out easily to insert paper.

The 1081 is a conventional 8-dot matrix impact printer, striking the ribbon with pressure which can be regulated to accommodate up to two sheets of no-carbon-copy paper. Feed can be friction or tractor. The tractor is in pull position, so if you want to economise on paper you have to learn to leave tails of the perforation strip beyond the tear-off edge.

There is a mains switch on the side of the printer. The top panel has three



switches, Friction/Tractor, Print-mode and a panel of alarm lights and on-line, LF and FF switches. A self-test occurs if the power is switched on while LF is held down.

There is no provision for roll-feed but fanfold paper works well. New paper is fed automatically under the platen if Friction is engaged.

The ribbon is a compact cassette which has a useful reserve tank of ink; when the ink becomes faint an internal reservoir can be prodded to release more ink until a new ribbon is ordered.

The 1081 is Epson-compatible, responding to all the industry standards — and QL defaults. It also has one or two additional facilities, including very flexible line and dot spacings. A single command — print mode — allows 15 presentations of a line of text — 5, 10, 12, 15 or 17 characters per inch in three densities. There are so many options that many a resort to the manual is needed before you are familiar with them all. There are even margin settings, centring and micro-justification commands. They are not accessible from Quill and direct word processing is probably tedious but it is available.

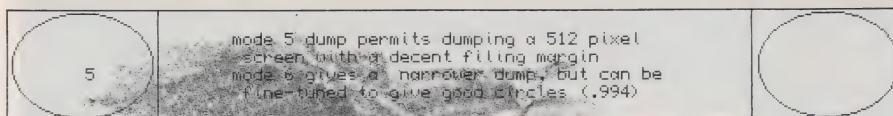
There are only two basic fonts provided but they can be used in a variety of ways, as exemplified by the installation data “varifont”: subscript and superscript can be called in Quill — not, unfortunately, in NLQ mode — but that data provides Italic when Bold is keyed (F4 b<sup>+</sup>). CTRL 0 calls proportional spacing, which gives good double-density text; CTRL 1 cancels it. CTRL 2 gives double-strike printing; CTRL 3 cancels it. C4 sets NLQ elite, C5 ordinary elite (96 cpl). C6 sets condensed print, C7 cancels 5 or 6. Finally, CTRL = sets a single line of elongated print — 40 cpl, 48 or 64 with C 4/6.

Proportional spacing is available with all fonts; the set of printer\_dat “justifine” prints a Quill doc having margins set to 0 and 60 with “micro-justification” which evens the spacing automatically; coupled with proportional spacing, it eliminates those “rivers of white” which irk typographers. All fonts have “true” descenders.

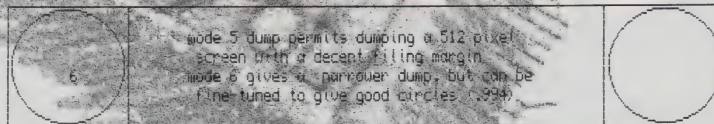
The standard font includes italic, but optional modes call IBM fonts which include graphics symbols. They are invoked in the other installation data sets; one will rule a table round figures, another will imitate the QL Greek characters and the third produces mathematical and logical symbols. They illustrate but do not exhaust the versatility of the 1081.

Printer instructions are interchangeable if each set is installed on a separate Quill clone. It is convenient, if you enjoy the use of *Turboquill+*, to set up a hot-key which will put a dummy table on the Quill screen for you to edit to the size you need. The lines appear on the screen as foreign characters but serve to show that new insertions match the current signs.

The table can be filled in “overwrite-



mode 5 dump permits dumping a 512 pixel screen with a decent filling margin. mode 6 gives a narrower dump, but can be fine-tuned to give good circles (.994)



mode 5 dump permits dumping a 512 pixel screen with a decent filling margin. mode 6 gives a narrower dump, but can be fine-tuned to give good circles (.994)

”mode. The 1081 uses 1/8in. spacing and prints a ninth bit to fill the table verticals; for clarity it is better to put text only on alternate lines. If even those facilities are not sufficient, there is provision for teaching the 1081 your own downloadable characters, like the Spectrum user-defined graphics. The instructions can be recorded and sent to the 1081 memory at switch-on. Beyond that, there is Inkwell DL.

There is a wider choice of dump graphics with the 1081 than with most comparable printers. In addition to the usual four modes — K, L, Y and Z — there are three others which give 80, 72 and 90 dots per inch of width. The gprint\_prt routine from Easel works well but covers only 480 pixels wide. If you need 512 pixels, or even 505 for a week’s plot at 20-minute intervals, these extra modes oblige.

A 1/72in. horizontal spacing is the same as that vertically and gives a “square” sprite. Unfortunately the normal QL screen is distorted and a mode 5 dump turns screen circles into ellipses on paper. If this is serious — and it is to me when copying molecular models — the mode 6 dump can be fine-tuned to give circles true

to within one percent. This is done by modifying the SuperBasic program of D. Lawrence — *The Working QL* — so that only four rows of pixels are printed at a time and the line-spacing is set to 13/216in. It is painfully slow if not compiled. For speed and flexibility, *Sidewinder* gives bi-directional control over dump size.

The 1081 is very good value when compared to printers costing half as much again. The speed, 120 cps, is not outstanding but the range of facilities is overwhelming.

C. R. Oswin

#### Information:

Panasonic Industrial U.K. Ltd., 280 Bath Road, Slough SL1 2DL; agent Goto Computers, 10 Old Crown, Windsor Road, Slough SL1 2DL (retl) Miracle Systems, 20 Mow Barton, Yate BS17 5NF (Centronics i/f), Panatir Products, 78 Leighton Road, Bristol BS3 1NU (Inkwell DL). Athene Consultants, 33 Holly Grove, Fareham PO16 7UP (Turboquill+). Zitasoft, 93 Foxbourne Road, Tooting Bec, SW17 8EN (Sidewinder).

#### Printer installation data

PRINTER	KX-P1081	KX-P1081	KX-P1081	KX-P1081
INST. NAME	varifont	table	greek	maths
END OF LINE	13,10	13,10	13,10	13,10
CHARS./LINE	80	80	80	80
PREAMBLE	—	27,109,3	27,109,3	27,109,3
POSTAMBLE	13,10	27,109,0	27,109,0	27,109,0
BOLD ON	27,77	27,69	27,69	27,69
BOLD OFF	27,78	27,70	27,70	27,70
UNDERLINE	27,45,1	27,45,1	27,45,1	27,45,1
U-LINE OFF	27,45,0	27,45,0	27,45,0	27,45,0
SUBSCR. ON	27,83,4	27,83,4	27,83,4	27,83,4
SUBSCR. OFF	27,84	27,84	27,84	27,84
SUPERSCR.	27,83,0	27,83,0	27,83,0	27,83,0
SUPER. OFF	27,84	27,84	27,84	27,84
TRANSL 1	35,96	145,27	172,224	123,244
tr 1 ctd		48,201		
TRANSL 2	144,27,112,1	146,196	156,225	125,245
TRANSL 3	145,27,112,0	147,183	173,235	147,176
TRANSL 4	146,27,71	148,179	174,233	148,177
TRANSL 5	147,27,72	149,195	176,214	149,178
TRANSL 6	148,27,111	150,180	177,227	150,179
TRANSL 7	149,27,77	151,192	178,232	151,246
TRANSL 8	150,15	152,188	179,229	152,251
tr 8 ctd		27,50		
TRANSL 9	151,18			153,247
TRANSL 10	157,14	35,156	35,156	35,96



# STAR LC10

I have had the Star LC10 eight-colour printer only for a short time and I have concluded that you can do almost any type of printing job which can be done with a computer and the proper type of program.

I bought it after seeing it advertised in the *QL World* by Sector Software for £259. The printer is made by 'Star Micro-nics U.K. Ltd. I admit that there was a delay in delivery — some weeks, in fact — because of the high demand from customers for the machine. So far as I know this has now been rectified by the manufacturers.

## Best deal

At the time of writing this review, the best deal for the LC10 seemed to be from Sector Software. I have seen the printer advertised for £300 in one or two other places. As the printer has been on the market for only a short time I do not think it will be possible to obtain second-hand machines for some time. The price may fall a little after the printer is available in larger quantities and from different sources but to get a dot matrix printer of this quality — not even taking into account the colour factor — you would have to pay many times the price I paid.

As for connecting to the QL, there were no problems. The printer has a Centronics-compatible, 7- or 8-bit TTL-level interface, so if you have a lead already, QL-to-Centronics printer interface, as I had, it takes only a few minutes to have the printer operational. With everything switched OFF, plug the QL end of the lead into SER1, the CPI into the socket at the lower right-hand side — looking from the front of the printer — and of course, the 13-amp power plug which feeds the printer.

## Comprehensive

The instructions for connecting are covered in a very comprehensive and good-looking users' manual which also covers a range of other printer data. If you do not have a QL-Centronics printer interface lead you can obtain one from Sector Software for £29. In general terms, all instructions are fairly simple to follow but, as in most cases, the more you know about computing the better the results.

I have an expanded QL, so I can use to

full advantage the functions:

- Choice of seven colours.
- Near letter and draft quality.
- Four built-in fonts, as italics, too.
- Paper park function.
- Push tractor and semi-automatic paper feed.
- Paper tear-off automatic for fanfold paper.
- ESC/P and IBM ProPrinter II emulations.
- Parallel interface.
- Front operation.

The QL set-up I have seems to work

DIP switch, use a ballpoint pen or other small object to move the switch to the ON or OFF position.

The printer power should be OFF when you set a DIP switch. Settings made when the printer is powered do not take effect until the printer is switched off, then on again. This is because the printer reads the DIPs only on power up.

## DIP settings

On delivery, all DIP switches are set to the ON position. They are the standard settings. To obtain various printer functions you can set the required DIP switches:

SW 1-1: Page length of paper, 11in. or 12in.

SW 1-1 ON: 11in. form: SW OFF: 12in. form.

SW 1-2: Automatic carriage return.

SW 1-2 ON: Auto-return. SW 1-2 OFF: NO return: Very few programs require this SW to be OFF.



SW 1-3: Orator typestyle. Selected from front panel on printer.

SW 1-3 ON: Small capitals.

SW 1-3 OFF: Lower-case letters to print as lower-case.

SW 1-4: Auto-sheet feeder.

If you wish to use the automatic sheet feeder (ASF). SW 1-4 should be turned OFF. Otherwise, leave ON.

SW 1-5: On for normal use. Stops printing about 1in. from the bottom of the paper.

SW 1-5 OFF: Printer ignores paper-out detector. Will print to the end of paper and beyond the bottom edge.

SW 1-6: Selects Standard or IBM mode.

very well with the Star LC10 and, provided the person operating the printer reads the user manual, there should be no problems.

When you remove the printer cover and look inside you see two sets of small white switches marked DSW1 and DSW2. They are the printer DIP switches. DSW1 has eight switches, named 1-1 to 1-8 from left to right; DSW2 has four switches named 2-1 to 2-4.

For all switches, the ON position is towards the back of the printer and the OFF position towards the front. To set a



SW 1-6 ON: Standard mode. Printer acts like the Epson LX-800.

SW 1-6 OFF: Selects IBM mode. Printer operates like the IBM ProPrinter II.

SW 1-7: Operation of this switch depends on the mode chosen with switch 1-6.

SW 1-7 ON: Prints italics in the standard character set.

SW 1-7 OFF: You get graphics characters, international characters and mathematical symbols of IBM character set #2.

SW 1-8: Automatic line feed control.

SW 1-8 ON: A separate line-feed code is required to obtain a line feed.

SW 1-8 OFF: Printer performs both a carriage return and a line feed each time it receives a carriage-return code. As most computer systems send a line feed code, or both carriage return and line feed, SW 1-8 should be left ON.

DIPs SW 2-1 to 2-4:

SW 2-1: Does your software download new characters to printer? To download characters this switch must be OFF. The printer then uses its RAM for storing character patterns and provides only a one-line print buffer.

SW 2-1 ON: Printer uses its RAM as an input buffer, allowing data to be sent faster than the printer prints.

SW 2-2 to 2-4: Do you want an international character set? With DIP switches you can select one of eight character sets as follow:

Country	2-2	2-3	2-4
U.S.A.	ON	ON	ON
France	OFF	ON	ON
Germany	ON	OFF	ON
England	OFF	OFF	ON
Denmark	ON	ON	OFF
Sweden	OFF	ON	OFF
Italy	ON	OFF	OFF
Spain	OFF	OFF	OFF

\*Denmark/Norway when switch 1-6 is OFF and switch 1-7 in ON.

All the software I have tried with the printer so far has worked well. The program I have used most of the time has been *DTP Extra* but I hope to have a fairly new program soon called *Page Designer 2* from Sector Software. It seems the program has a built-in colour driver which, of course, is just what I need. To go with PD 2 you can get Clip Art cartridges which contain a variety of artwork for inclusion in the particular doc on which you happen to be working.

## After sales

I have been in touch with Star Micronics about after-sales service, if required, and was told to make contact at any time if I have problems.

One thing I must mention is the

inclusion at the back of the user manual of a consumer response address for the U.K. It invites suggestions and comments from the user on the printer and/or manual, which I think is a good idea.

Replacement printer ribbons, both eight-colour or black only, are available from Sector Software at £6 each. Other parts can be obtained from Star Micronics. Paper for printing I get from various sources.

## Impressed

Having had the printer for only a short time I am most impressed with its good looks and ease of operation. I was particularly impressed with the paper parking facility, which makes changing from fan-fold to single sheet operation and back again a joy. I was able to use the printer with Quill soon after I received it. I used the Quill 1run mdv1\_install\_bas, looked down the list of printers which had already been installed and picked an Epson LX80. After I had installed the Star LC10 on Quill, I tried a test printout which worked perfectly first time. This printer meets my expectations in use and does far more than I anticipated.

I think you would have to go a long way to find a printer like the LC10 8 Colour for performance and price.

W. G. Johns

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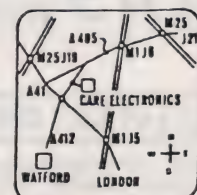
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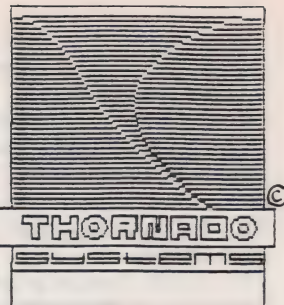
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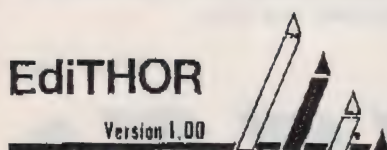
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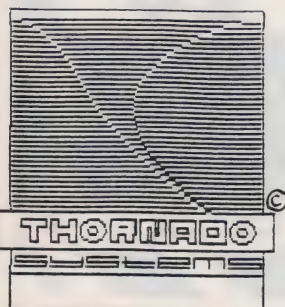
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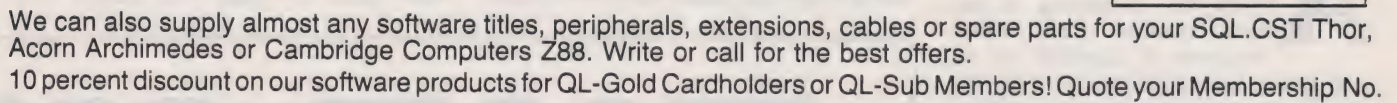
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Sinclair/QL World January 1989



**Software:** Archivist  
**Distributor:** Ark Distribution,  
Ventnor.  
Tel: 0983 79496.  
**Price:** £39.95 (inclusive)

**A**rk Distribution has recently released the latest version of *Archivist*, containing a runtime module from Psion. *Archivist* is intended for the professional user of databases on the QL, in particular for those who do not wish to take the time to learn the programming language of Archive, or those who do not wish to invest heavily in staff training.

Without doubt, the greatest advantage of *Archivist*, compared to *Archive* — the database manager which is included in the price of the QL — is that the structure of the database is already designed by Ark, including the screen, and no programming knowledge is required to use it to its full potential. It is, however, possible for the user to design his own screen.

### Two Microdrives

The package consists of either a 3.5in disc or two Microdrive cartridges containing the software and a 49-page manual, reasonably well-printed on A4 paper enclosed in a pair of acetate sheets. Apart from giving the necessary technical information, the manual also includes a tutorial section.

Unfortunately, the tutorial gives only a step-by-step introduction to single file operation and the user is required to investigate the relational facility of the database. This remark is not intended to be a criticism; it is appreciated that the manual is always responsible for a large proportion of the cost of commercial software. Bearing in mind the price of *Archivist*, it probably was a wise decision to limit the extent of the manual, thus keeping down the cost.

*Archivist* employs the technique used frequently by commercially-available databases, including *dBase*, of holding only a few bytes of the data file in memory and only a short index, sufficient to identify the data. The memory space thus released increases the potential capacity of the database, even if it slows operation somewhat. For business applications and, clearly, *Archivist* was written with the businessman in mind, the speed of a database manager is very important. How fast, or slow, is *Archivist* compared to others?

### In favour

To answer that question I loaded the same data as that which is supplied as a demonstration file on the distribution disc into *Archive*. I found only a very small difference in the time required to search

on any field, scarcely worth any concern, but it was in favour of *Archivist*. I admit that with only eight records in the database I did not expect to see much difference in speed. As a similar exercise, I also entered the same data in an 8-bit version of *dBase 2* on an Amstrad PCW. I realise that such a benchmark test is not on acceptable, scientific lines but it might be worth noting that *dBase* was approximate-

customer before starting work. As part of drawing a comparison between *Archive* and *Archivist*, it is worth considering the possibility of converting *Archive* files for use by *Archivist*. The Ark software contains 22 fields per record but the Psion software will accommodate many more fields.

If your *Archive* database contains not more than 22 fields you should use

# THE NEW ARCHIVIST

Leslie Fahidy looks at the latest upgrade  
Distribution user-friendly relational data  
Archivist.

ly 10 percent faster than *Archivist* in locating a given record.

I could not investigate the capacity of *Archivist*; obviously I could not fill a 720KB disc, or even a Microdrive cartridge, with structured data. The manual, however, states that the maximum index size for a data file is 64KB, which suggests a capacity of approximately 10,900 records per file. This should be satisfactory for most users; in fact, most users would not require so large a database.

*Archivist* is not programmable. That limitation is not due to any action on the part of Ark Distribution — it is the result of the marketing policy of Psion. An extra package, *Archdev*, is required to program the database. I do not consider the limitation serious; the main advantage of *Archivist* is that it is easy to use by operators who have no specialist training in programming. They would scarcely want to program the database manager. The *Archdev* package is, however, available from Ark Distribution, at an additional cost of £20. Further, it will undertake to adapt *Archivist* for specialist uses — effectively program it for the user — at reasonable cost. My enquiries revealed that the fee for the customisation service is calculated on the basis of £8 per hour of programming time. As a further safeguard for the user, Ark Distribution will prepare an estimate of the cost and submit it to the

'convert\_bin', part of the *Archivist* software, to convert to the new format. This method is reasonably fast and well-explained in the manual. If your *Archive* database contains fewer than 22 fields the remaining data space will be padded with blank fields.

When converting *Archive* files which contain more than 22 fields per record, the distribution software 't1\_pro' is required. This is a very slow process; it might require several hours to achieve the conversion. More restricting is the fact that it will not convert more than the first 22 fields to *Archivist* format.

### One solution

The manual mentions one possible solution to this problem. You may copy more than one *Archive* field to one *Archivist* field. I do not favour this solution; apart from the fact that it might give rise to problems in connection with searching on a specific field which has been condensed to become part of a composite field, problems may also arise with screen layout. I would rather advise the user to investigate the possibility of splitting an *Archive* data file containing more than 22 fields into two or more *Archivist* files and using the relational facility of the database manager.



The software does not have numerical fields as such but it is possible to enter numbers into any field. In connection with this, I should mention that the software has a number of external procedures. One of them will carry-out arithmetic operations on numbers by first converting the string to a numeric value.

Mail-merge is not directly available from Archivist but a similar effect may be

# W VIST

on the Ark  
base,

achieved, even though it is not very convenient. It amounts to printing the variable data separately on a A4 sheet of paper, feeding the same sheet in the printer again and printing the rest of the document to be merged — in perfect registration.

There is, however, another solution. Ark Distribution supplies a separate package, *Mailmerge*, for £10 and it can provide conventional mail-merging facilities in conjunction with Archivist.

## Relational

Archivist is a relational database. The way you can access the multi-file facilities is via a 'control file', a standard database file created the same way as all other files are created, containing one record of each file the user wishes to open. The distribution package contains a control file, with the aid of which the user may experiment with multi-file set-ups. The manual is not easy to read on this point but it is manageable and it should not take long before the user becomes accustomed to using two or more files. I would like to offer a word of advice — it would pay to become fluent in the use of one file only before attempting the relational use of Archivist.

For any software potentially as useful as

Archivist, it is essential to investigate the hardware and software add-ons with which the system can work. The software will work equally well with disc drives and Microdrive cartridges. It will also accommodate a mixture of the two, which would be important for anybody who uses one disc drive. Under those conditions it would be advisable to use the disc for the program and the cartridge for data storage. I have operated Archivist on such a system and found only one problem, which can be overcome.

## Cloning

It is necessary to clone the software before using it. Whether the system was obtained on disc or cartridge, it is possible to set it up in such a way that the software will operate from either of those media. The problem I found was that, with only one disc drive available, it is not possible to configure it so that the program is transferred to the user's disc — you need two drives for that operation. The way I managed to overcome the problem was to clone it first to Microdrive cartridges — two formatted cartridges are needed — and then clone it again from cartridge to disc.

Archivist works well with *QRAM*, *Trumpcard*, *Taskmaster* and *Speedscreen*. Numerous utilities are supplied on the distribution package and setting-up the system with these add-ons is not easy. Ark admits that, but the effort is worthwhile.

The software will drive all Epson compatibles. There are three printer-related files supplied with the software; *install\_bas* is a printer driver editor and installer; *install\_dat* is a database of printer drivers and *printer\_dat* holds the currently-installed printer driver. *Install\_dat* holds information on almost 20 popular printers and it should not be difficult to find a suitable device to match most printers.

*Install\_bas*, however, is available for the rare occasions when it becomes necessary to install a non-standard printer. In that event, in common with all other software and all other computer systems, it is necessary to know certain 'vital statistics' of the printer before it can be installed. The necessary information should be available from the printer manual.

## Menu-driven

The software works with a series of menus, pressing the key 'Q' serving as an escape to the previous level of prompts. Pressing that key from the master menu — the first menu — closes all files and terminates Archivist. The menu choices are well-thought-out and presented in a logical sequence. I found that even though I was not able to operate the software without reading the manual — I always try

that when reviewing software — the menu options became logical once I had read the instructions and worked my way through that particular menu twice. At the end of an hour or so I was able to put away the manual and work from the menus. That is not bad for an item of software as complex as Archivist.

The best way to describe the manual is by saying that it is rather full. It does not make easy reading. The 49 closely-typed A4 sheets might just as well have been designed to deter the potential reader. I admit, though, that once you wade through it all and make the effort to follow the instructions, they make sense and they work. The manual also has a useful contents page but, unfortunately, no index. The Archivist manual shares a common feature with most manuals for QL software — it assumes that the reader is thoroughly familiar with the whole of the QL terminology and with all the hardware and software add-ons, I never like that trend when contrasted with software manuals written for other systems. In the case of Archivist, I find it particularly annoying, since the system is intended to be used by non-experts in the field of computing.

There is no doubt that financial constraints are largely responsible for this style — every extra printed page of the manual will add extra cost to the software — but I still feel that publishers of an excellent piece of software such as Archivist should pay more attention to the needs of non-expert users.

## Squeezed in

Archivist is an extremely useful database manager. It works with most configurations of the QL, can be made to work with all printers, it is fast and, particularly when using extended memory, it can handle a database big enough for most practical applications. That the standard Archivist database contains only 22 fields may seem limiting at first. It certainly is a limit, though not a serious one. There are very few database managers which do not have some limit on the number of fields and, in the case of Archivist, the limit may be extended slightly by grouping certain kinds of what the manual calls 'flag' fields. They may hold a series of letters each indicating whether a certain condition is or is not true. That way, a number of pieces of information can be squeezed into one field, which otherwise would have required a separate field.

Most important of all, Archivist is easy to use. It is unfortunate that the manual makes it seem more difficult than it is. In spite of the shortcomings of the manual, I would not hesitate to recommend the software to any potential business user, or domestic user with sophisticated requirements, but with no wish to learn the programming language of Archive.



# Computer GAMESWEEK

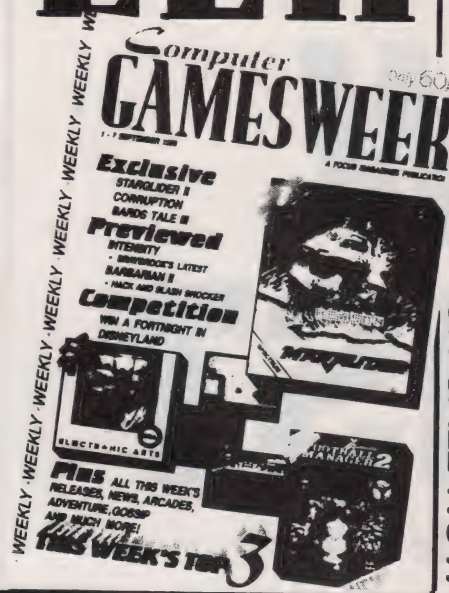
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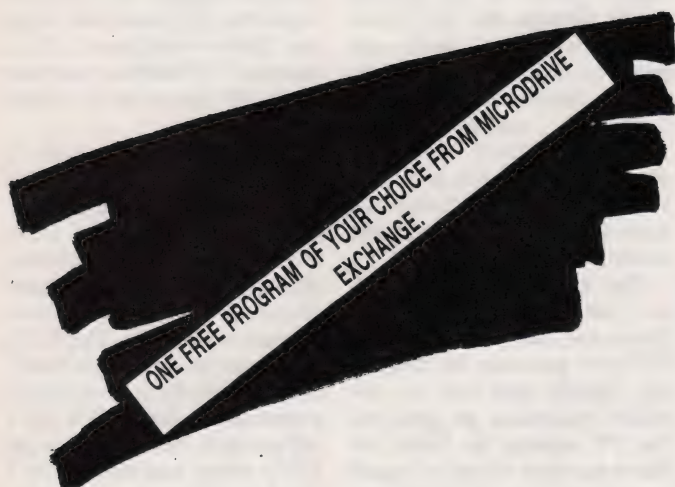
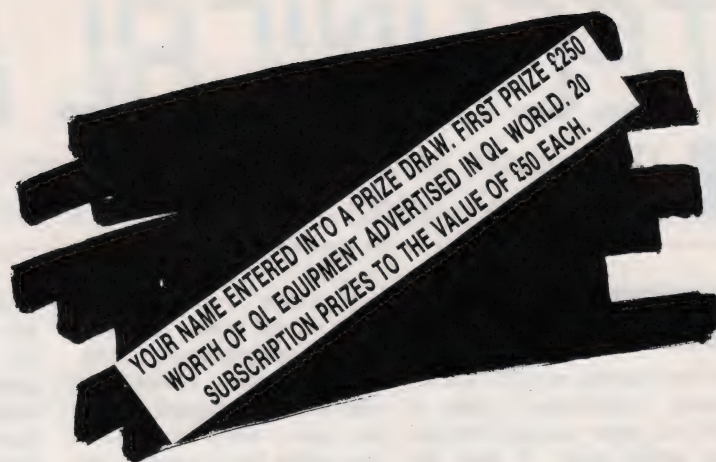
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 **FOCUS**  
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# TECHNICAL HELPLINE

This month and next, Dennis Briggs of Adman Services puts aside some of his many other activities and finds answers to some tricky questions.

## Silver lining

*While cleaning my QL Micro-drives, I discovered a piece of silvered paper tucked between the serial ports. It had the following format:*

R4	5.0960K	H
R74	37.540	H
R75	Out of range	H
R75	Out of range	H

QL — Issue 6 JIG B  
14:38:21 10-Jan-85

*I bought the machine in May, 1986, and it was the first time I opened it. What is wrong with R75 and is it serious? I have experienced no problems to date, apart from jamming cartridges and slight overheating. I am about to expand my system and if this discovery means a major fault I would like to know. For instance, will the machine fail with Trumpcard, double discs and Speedscreen?*

**Ian Thompson,  
Ripon, N. Yorks.**

The piece of paper you have discovered in your QL is very informative as it gives details of the time and date your board was manufactured and tested. It also gives details of three of the many components on the board which the Automatic Test Equipment found to be out of specification.

It does not mean they are still out of specification; as you state, the QL performs perfectly. The boards rejected by the ATU were all sent to a special area for remedial action and then assembled into cases only when they passed the ATU plus other inspection procedures.

The correct specification is:

R4	.....	3K3
R74	.....	8K
R75	.....	8K

These resistors are clustered at the top left of the board above the CPU as per the diagram. I suggest you leave

well alone, otherwise you could easily create problems where none exists at present.

Will it work satisfactorily with an XYZ plugged in? I do not know until an XYZ is plugged in but if it works now and not with an add-on, it is the add-on which is at fault. The Trumpcard is reliable while Speedscreen is just software unless you go for the EPROM version, while a disc drive is really a stand-alone unit which has very little to do with the QL. It is possible to run a disc drive separate from any computer, so the thing works or it does not.

## Wobble

*In the April, 1988 issue you explained the reason for "wobble of the top of the display". My QL developed a fault under warranty. The fault occurred again and I am sending it for repair. Everything on the screen judders horizontally; a vertical line looks like a series of short horizontal lines. Figures appear to be oscillating sideways.*

*There had been a slight fault for some time but when I plugged into a 13A socket which is not often used the contact was erratic. This would have imposed voltage spikes on the computer. I always pull out the power lead before switching off the supply to the power unit.*

*I now intend to buy a protective plug but this will not prevent the power unit generating a spike when the mains supply is switching off. To protect the QL against that would require a DC protective device between the power unit and the QL, such as a big capacitor or resistor. Does any firm supply such a protective device?*

*I am very anxious about the consequences of a power cut. I remember that this juddering fault developed originally soon after we had a power cut. This may be just coincidence.*

**W. R. Frank,  
Barnsley, Yorkshire.**

The signals for the QL display are generated in the first place by a ULA which is situated next to the 68008 CPU and is referred to as a ZX 8301. It can have this marked on it or it can have 8310 or 2310. It is an unbuffered chip — it is connected direct to the outside world through the RGB socket; therefore it is easily zapped into oblivion by anything nasty in electrical terms.

Further, certain add-on boards cause this IC to become very hot, which then produces some unpredictable behaviour from which it may or may not recover when it cools.

The signals from the ULA are then taken to a video processor chip marked MC 1337p to generate the composite signals and then to the video modulator to generate the TV signals. So there are three separate stages of signal processing, any of which can produce problems.

Always remember that when an IC is fitted in a socket that the simple process of easing it up and pressing it down will re-make all the connections. Do this on the 8301 and the 1337p will re-make 60 connections, any of which could produce a problem.

To find what is wrong with the QL display, it is best if it is plugged into a television set. A blank screen, but with snow on it, points back to the 8301. Plug the QL into an RGB monitor and look. A black screen means the 8301 has failed, as does a white screen immediately, but do not be fooled, as a RAM chip failure can also produce a white screen after the QL has gone through the initialisation process. That is just before the 'tweed' pattern appears.

If the F1/F2 prompt appears on an RGB monitor you can plug a composite monitor to find if the 1337p is working. That sounds very expensive but if a Ferguson MC05 tele/monitor is used it will accept TV, composite RGB, straight

RGB or even SCART, so it is a matter of pressing a button on the set.

It may be that the composite or TV picture is satisfactory but it is not in colour. That is due to the crystal at the side of the 1377p not oscillating. It is cheap to replace but you need to get the QL board out of the case first to work on it. It is a standard 4.4366Mz crystal used in ZX-80, Spectrum or similar machines.

Wobble of the picture is usually due to the 8301 being a little suspect or to suspect pins. Do the RGB test. The 1377p could introduce many patterns, especially if the aluminium screen is left off from around Microdrive 1 ULA. The 1377p is jammed to this which means that the high-frequency signals generated in the MDV1 ULA will produce interference in the 1377p which you will see on a television when the Microdrive is running as vertical bars. Some of the bars are inevitable on some QLs with particular television sets. The TV output was never intended for serious use but is satisfactory for the odd game.

If you want to try something, get a can of freezer spray and apply it to the 1377p if it is suspect and to the 8301. Look at the display to see the effect of temperature on the components and then think about reducing the internal temperature of the QL.

With regard to mains interference suppression, it is not a bad idea to do this but unfortunately it is the QL power supply which was really a compromise design which introduces many problems. Mains spike suppression filters are available or can be built easily for a few pounds to a very high standard. They may work or could be of no benefit, depending from where the interference is coming. It is a good idea to change the 7805 regulator in the QL as some were a little borderline, with the 78805 from Maplin being a good buy.



It may not do anything really drastic but it can help. If you live in line with a microwave link or near diathermy equipment or any other source of powerful but invisible radiation, sell your computer and take up golf — you will never crack this one.

## Chip upgrade

*I take apart every new gadget I obtain. My QL received the usual treatment and left me wondering about upgrading possibilities for the DIY fanatic. In addition, the cost of upgrades makes it difficult to justify when the obvious choice is to jump on the PC bandwagon and get a 20MB Winchester for the same price as two floppy drives for the QL.*

*RAM chips can be obtained cheaply if you look around. I was hoping to swap the 64K chips for 256K chips as hinted in one of your editions but address lines are missing. Can you advise in more detail how to upgrade to either 512 or 640K? Can 120ns or 100ns chips be used and the clock frequency cranked up a little?*

**Adrian Ogden,  
Honley, Huddersfield.**

The first step to take in considering hacking the QL is to buy the QL Service Manual which can be used as a guide but has some errors in it, many of which are important. You must also have good electronics skills and a good understanding of computer hardware. There is no place here for discovery learning, as the result will be a scrapped QL.

Winchesters of 20MB are cheap on the nearly new market with prices of around £20 up but the interface to the QL is not available unless you have the answer. Ordinary disc drives are also cheap but the interface to the QL must be obtained or built. This is where your electronics skills are needed.

Putting faster access chips in a computer does nothing to increase the speed, as this is governed by the CPU clock. A faster CPU can be fitted along with the correct crystal but it will not work in the QL as the 8301 ULA cannot be cranked

up. If you try it, the display becomes garbage.

It is possible to solder 41256 memory chips over the top of the 4164 memory chips or try to replace the 64s on the board. This is very difficult and you will probably scrap the board. The snag is that the internal memory spends part of its time refreshing the display, so internal memory runs significantly slower than that in an add-on board.

SPEM in Italy supplies an internal upgrade for about £65 which needs some skill to fit.

The so-called restrictions of the QL are really a myth, as anyone who has had contact with the PC clone will confirm. Most of the problems are from the software side and until you see something like *The Editor* or change multi-tasking satisfactorily on the QL, try to do it on another machine.

## Disc transfer

*I have a technical problem which must be applicable to more QL owners in the future. I own a standard QL and have a large quantity of stored data on microtapes. I have now purchased a CST Thor twin floppy disc unit and wish to transfer all the data on tape to floppy disc.*

*What connections do I need to make? what keying operations do I need to action the transfer?*

**John Fraser,  
Sunninghill, Berkshire.**

This is a simple job if you have both machines, as you network them and, provided you have *Toolkit2* on an EPROM in the QL, everything goes across.

As the Thor uses a QL board, the other alternative is to fit a Spectrum Microdrive into it and read the tapes direct.

The commands to be used for networking are very well-documented in the Thor manual and all you need to know is that for just two machines networking, to call both station i.e., NET.

A final solution is to give the tapes to someone with a QL and disc drives who can then put all the material on discs which the Thor will read. You

have to be careful that the discs are the same physical size.

I am sure CST will provide this service if you have difficulty.

## Microdrives

The subject of Microdrives has been raised in regard to the performance and number of sectors. Having repaired a number of these units, I will add to the discussion from a practical viewpoint.

The motor is a mechanically-governed unit, in that when it reaches a certain speed, the brushes are lifted from the commutator, stopping the current flow which slows the motor which, in turn, allows the brushes to rest back on the commutator.

It is all highly technical and is best seen on a Victorian steam engine. It means that the rotational speed is independent of voltage and is somewhere near 2,400 rpm  $\pm 100$ rpm.

Fitted to the motor is a rubber roller to pull the tape past the head. The roller had a long history of hysterical development in Cambridge for many months which was sorted out at Feltham in minutes.

The original roller was plastic with teeth on it, followed by a double-lipped one, a very smooth one and a triangular one. Somebody at Feltham took a rubber roller from a scrap tape player and solved the problem. Not to be outdone by simplicity which worked, Cambridge increased the diameter of the roller by 10 thou.

In short, the motor speed varies and there are two sizes of roller. ICL put a great deal of research and development into the OPD drives and sorted them out before sale. It had a performance specification for the read/write head, also strict quality control on goods inwards, hence the Microdrives worked.

When the inevitable happened with the non-reading head trying to read the unreadable packages, the computers whistled back to Feltham at an alarming rate.

The man at Feltham took the heads from the OPD line next

to him and there was an instant cure for sick QLs. He got a rocket for his troubles as Cambridge had other ideas. They are in the service manual and have appeared in print in the form of track cuts on the PCB. They were never done.

How anyone can suggest that re-routing two tracks can compensate for a read/write head with low performance is beyond belief. If you believe that teeth are good for moving a video tape I suppose you believe anything.

So far we have reached the stage where the Microdrive unit is fairly reasonable — but why are the OPD ones so much better than the QL ones? They can be because the engineers have plugged an OPD module slightly altered into a QL and proved it.

The Cambridge solution is to shut all the doors and pretend it is not happening but in the meantime re-design the whole QL PCB, calling it Issue 6.

We have sorted all the bugs, except that in altering the Microdrive PCB it is certain it will not work. To get it to work we have to make two track cuts on the Microdrive PCB and put pieces of wire in their place; also daylight eventually dawns that the outer casing (screen) or the read/write head needs grounding.

What other problems are there? Heat is the enemy of electronics but if there is a very hot radiator next to Microdrive ULAs as they suffer and fail.

Do not drill holes all over the casing but use a power supply which delivers a smooth 8V. You do not even need a heatsink then and it cures all the other related heat-crash problems.

To change the ULA is a difficult job, as one false move will wreck the board. I have a rig to test the ULA and the head separately before they are soldered. An economic computer service charge for this is about £60 each, so I do only a very few.

I have juggled with all the variables to build a top performance pair which give me 230 sectors regularly. What a waste of time, as I have disc drives of all sizes as well.

If you really want the ultimate Microdrive, plug a tape streamer in its place if you can afford it.



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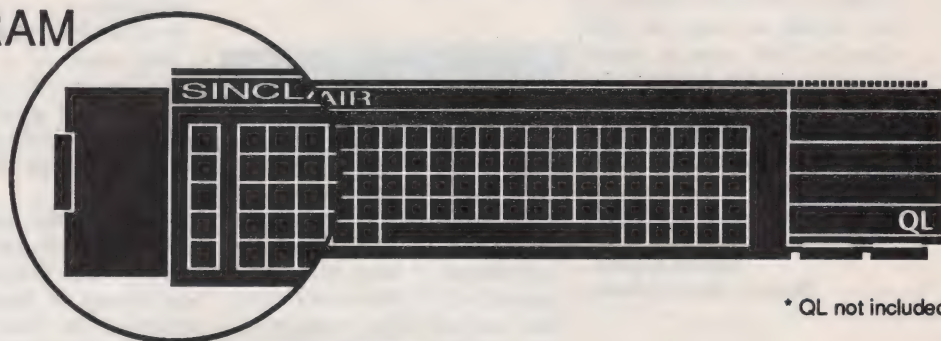
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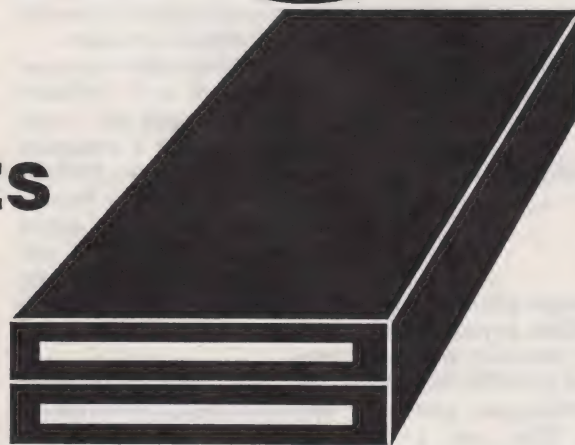
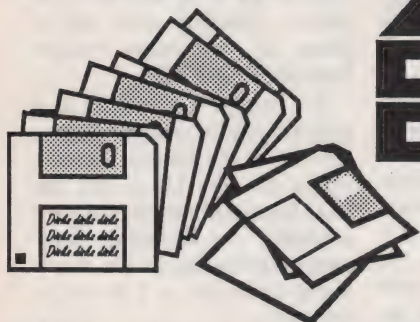
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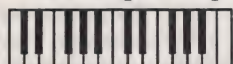
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# TROUBLE

**Bryan Davies pries into one or two other machines to see what they can provide and sorts out some more queries.**

**T**ext<sup>87</sup> is a program which may have deterred early users as it takes some time to come to grips with it. Having had a few sessions with it, in versions up to 1.10, I now know how to get many of the results I want and can better appreciate the effort which went into writing it. There are still some features I would like to see altered, or introduced, and the author is working actively on various changes and enhancements.

The program makes a serious attempt to display characters on-screen to match those which will appear on paper from the printer. How close the screen presentation is to that on paper depends to some extent on how much effort the user is prepared to make designing new or modified fonts but five good fonts are supplied and they may be sufficient for the needs of most users. Of the 10 PC and three QL text programs I have tried, Text<sup>87</sup> is certainly the only one which can reasonably claim WYSIWYG capability.

The Z-88 has solved a problem for many people who work on-site, as well as at home or in an office. The manufacturer and various suppliers have appreciated the need for several forms of linkage to other computers. The frequent references to the Z-88 in Amstrad and PC magazines show that its appeal is spread wide. Linking programs with the necessary cabling are now available for PCWs and PCs, as well as for the QL.

The PC program works smoothly and demands little of the user — simply plug in and go. The instructions refer several times to the possible transfer of files with nothing in them; to avoid making this error — I did because someone else had the instruction book — make sure that any files which are to be converted from one format to another, such as WordStar to PipeDream, are in the same PC sub-directory as the link program.

You can transfer files from PC to QL

directly, or via the Z-88m, using both the PC-Z-88 and QL-Z-88 link packages. Alternatively, you can use the DiscOVER program, which avoids the problems which can accompany transfer through the communications ports by working only with discs taken directly from the PC and QL.

Much of my attention in recent months has gone on an AT-compatible system and I have commented frequently to computer friends that all the bad things I had read about PCs seem to be true from my experience. To put QL and PC in their places, at least in some respects, try reading articles on the new IBM operating system, OS/2.

One of its main advantages, as I read it, is the ability to permit several programs to run concurrently, something which the PC can manage only with a special management program loaded and 1MB or so of memory available; the 80386 AT with these programs can genuinely multi-task, several programs being able to continue running in the background, but the 80286 AT and PC/XT, permit switching only between "frozen" programs.

## Pops up

The only way I have so far obtained any degree of multi-tasking on the AT is to use the word processor WordPerfect 4.2, which allows you to switch between two documents, and the utility SideKick, which pops up over whatever program you are using and has notepad, telephone dialer, diary and calculator facilities.

Only one program is running at a time, which is sufficient for most people's needs but there are penalties to pay for even this limited ability, MS-DOS uses no more than 640K of memory with most programs and SideKick and various necessary DOS routines reduce that to about 450K on my AT.

The full form of WordPerfect requires about 380K, which gets you back to about the level of a basic QL so far as space for documents is concerned. Basic is not even loaded into the AT — that is a separate executable job.

After six months of fiddling I still do all my serious work on the QL, because I find it too restrictive not to be able to switch between several programs and because the programs I have on the AT are not so good as The Editor and FlashBack on the QL. The sting in the tail is, therefore, the

AT is far faster for most of my operations than the QL, partly because it has only one job loaded at a time and partly because of the hard disc, whether or not the processor is faster, I cannot tell. Unless you have a commercial need to buy a PC, you are better staying with the QL.

Spell-checking and printing is still a very slow process on the QL, unless you do it concurrently with typing documents — which I find an irritating procedure — or have QTyp to use which you must have with other QJump products. It would save me much time to be able to check each letter with SpellBound in a few seconds, as soon as it has been typed, without having to go out of Editor and wait for a minute or so. In the same vein, the printing process with Editor is not exactly fast or convenient, except for trial draft prints, which I rarely make. Is the outlook for the QL market too gloomy to request that the respective authors produce upgrades of these two good programs?

A recent addition to the clutter in my working area is a robot, designed for use in educational establishments as a teaching aid. It is very well-behaved and accurate; interfaces are available for the PC, Spectrum and BBC. Has anyone experimented with robot devices on the QL? This one must be in a particular category but I do not know what that is called; it has gripper fingers, wrist movements — rotary and up/down — elbow, shoulder and base — rotary — with a total of six motors. Interfaces are an area which seems fraught with problems but I would appreciate comments on the possibility/desirability of making one for the QL. The Basic source code for driving the robot looks simple enough to be converted into SuperBasic.

## QJumped?

Sandy and QJump have both reduced their involvement with the QL. Sandy as a supplier no longer exists but Power Computing at the same address is continuing to supply QL products, including the QEP III EPROM programmer. No new QL products are likely to be introduced by the company. QJump is understood to have withdrawn from the QL market, possibly only temporarily.

From correspondence and calls received, it appears that Caret computers and Smiling Software are both no longer active on the QL scene.



# SHOOTER

E M S O L V E D

**L. G. L. Unstead-Joss** asked whether anyone can explain how to perform the castling move when using Psion Chess. There appears to be no advice on this in the program instructions or help file.

**L. Miles** complimented Talent on its service. His copy of *Assembler Workbench* became corrupt and he was sent a replacement four days after he posted the old one. He contrasts that with a wait of nine months — and possibly still waiting — to get his Smiling Mouse working properly. **S. Jenner** thanked DJW Software for making several long-distance calls to solve a problem which was not its fault. **V. W. Wright** was very impressed with the service from TK Computerware and the Post Office, as goods ordered at 14.30 hours one day by telephone were received first post the next morning. As he lives more than 250 miles from TK he feels the service was excellent. He has also received first-class treatment from PDQL, as has **C. Reynolds**.

**Penny Haywood** wrote from Edinburgh to compliment TK Computerware on its very helpful attitude when solving the problem of her machine crashing. Unusually, compliments have been arriving regularly. Another was from **Heinz Geisler** in Berlin, who was given very positive assistance by QJump when he wrote about an apparent keyboard interface problem when using programs like *Pro Cad 3D* with the Sandy Q-XT 640.

**D. N. Mendes Da Costa** found his supplier in Portugal less than helpful when he had trouble with his Trump Card, but Miracle Systems replaced the interface when he made direct contact.

**R. A. Mellor** offered to help **M. Tuppenney** with his problems in the *Treasure Hunt* program and has now supplied a working copy of the game, plus another game. As Tuppenney says, "How helpful and co-operative *Sinclair QL World* readers and QL owners are."

**J. Camps Oliver** of Valencia has been repaid by the Post office for money sent to QParts which was not cashed by it — it does not deal with overseas orders. **Timo Mikonmäki** in Finland asked for help with queries to Creative Codeworks and Eidersoft-QL but he gave his address only as 'Helsinki'. That is asking too much of the postal services. Please always give full address and name when writing letters to suppliers or to us. I understand both suppliers have dealt with the queries, which resulted from misunderstandings.

On a similar theme, it is important to

give full details of both your problem and your system configuration when asking for help. The various versions of QL behave differently in some respects, as do different interfaces.

Byteback has sent a second copy of *SpellBound* to **I. B. K. Rumsby** after he complained that his order had not been filled; it has also refunded money paid for *SuperForth*, which is no longer stocked by it. **B. Wright** has received a refund from the same supplier when it was acknowledged that an Expandaram could not be supplied.

**Boris Popovic** of Sarajevo, Yugoslavia bought the Seiko RC-1000 wrist watch/terminal but found that the cable and software supplied with it were for connection to a Spectrum, not a QL. Data-Skip has said it will supply the correct cable and software if Popovic returns the Spectrum items.

**G. M. Young** wrote on the subject of converting a monitor to receive TV programmes. He makes the point that a complete sound section would have to be added, as the monitor is unlikely to have one, and the power available may well be insufficient to drive the extra functions. Possibly the main point is the potential danger from the high voltage/current present, if the person doing modifications is inexperienced.

## TV adapter

Philips offered an external adapter in 1987 — its service address is given in the information panel. **Stefano Pisseri** from Italy also suggested a Philips adapter, the AV 73000, which costs about £75 there; it allows reception of TV transmissions by a monitor and has its own speaker.

He also mentioned a unit available in Italy, the CTS tuner from Policom; it has no audio section and may be unsuitable for a monitor which does not have its own audio unit.

**A. F. Wall**, who is almost blind, asks if any reader knows of a speech synthesiser unit for the QL, since the QTalk unit seems to be impossible to obtain. Does anyone have experience of the ABC Elektronik U+5 buffer unit? **Cornez Pierre** of Belgium finds that he cannot plug any of his expansion cards into the buffer and get correct operation. Any comments would be welcome.

He notes that he has bought from SPEM a unit for plugging four expansion cards into it and that works "perfectly"; it is not buffered.

**K. Metcalfe** has been unsuccessful in obtaining a copy of Jan Jones standard reference book on SuperBasic. So have I. The publishers want large orders before they will start a new print run and no QL supplier wants to order 1,000 copies. Are there any ideas where to get this book? For those unfamiliar with it *QL SuperBasic — the definitive hand-book* is just what its title suggests. It was written by the woman who wrote the language and she uses words in a way which permits even computer novices to gain some reasonable understanding of SuperBasic.

Do not take that to mean that it is light reading, because nobody could describe the structure of a computer language in purely lay terms; you have to work at the book, reading sections several times, to give the penny time to drop.

## INFORMATION:

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Ulmes Walton,  
Leyland,  
Lancs PR5 3NA.  
Tel: 0772 454328.

DiscOVER QL-PC software £29.50:  
PDQL Computer Systems  
Unit 1  
Heaton House,  
Camden Street,  
Birmingham B1 3BZ.  
Tel: 021 200 2313.

Z88-PC link software + cable £24.95,  
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Transform Ltd,  
24 West Oak Road,  
Beckenham,  
Kent BR3 2EZ.  
Tel: 01-658 6350.

TV adapters:  
Philips Service  
604 Purley Way,  
Croydon,  
Surrey CR9 4DR.  
Tel: 01-686 0505.

Policom Italia  
Via P. F. Mola 39  
20156 Milano,  
Italy.



This month's routines cover plenty of ground, from task-control through parameter-handling to error-trapping. The routines are short but they make heavy use of the operating system code built into the QL. There are four new keywords, which between them demonstrate every type of resident routine — one procedure, plus functions which return an integer, a string and a floating-point number.

PURGE is a keyword with dramatic results. It removes every task on the QL, apart from the SuperBasic interpreter. In the process channels are closed and memory is de-allocated. PURGE is useful when you want to tidy the state of the machine.

It is easy to have many tasks running at once, especially if you use QL compilers or task-managers. Conventional task con-

trol commands require you to type the name, or number and tag, of each task you want to remove. This is tedious if you want to remove many tasks and particularly tricky when multi-tasking displays are in use.

You might type LIST-TASKS to find the necessary names and numbers, only to find that the table disappears almost as soon as it is displayed. Details are often over-written or scrolled away by the tasks

ly with other types. For instance:

```
max%=PICK$(1+x%>y%, y%,
x%)*2-1
```

is a shorter way of writing:

```
IF x%>y% THEN max%=x%*2-1:
ELSE max%=y%*2-1
```

The parameters of PICK\$ may be functions or expressions. If your functions have side-effects on files or global vari-

# DIY TOOLKIT

This month Simon Goodwin tames multi-tasking, input errors and the SElect statement.



you are trying to remove. PURGE is fast and simple in comparison. You type PURGE, without parameters, to remove everything but SuperBasic. PURGE will work from a compiled task but will remove itself at some stage. It will not necessarily stop all the tasks on the machine unless you run it from Basic, where it is most useful.

PICK\$ is a string function for programmers. It works rather like a SElect statement but can be shorter and easier to read. PICK\$ takes between two and 4,096 parameters, although in general you are most likely to use it with three or a few more. The first parameter is an integer; the others can be any type but will be converted into text strings.

PICK\$ returns one of the other parameters, selected by the value of the first parameter. For instance:

```
PRINT PICK$(direction%,"North",
"East","South","West")
```

will print one of our compass directions depending on the value of DIREC-TION%; 1 means "North" and so on, clockwise round the compass rose to 4, which means "West". Parameters after the first are numbered from 1 to 4,095, or the number of the last parameter.

You can also use PICK\$ to replace IF tests and assignments, although the resultant code can be rather opaque. PICK\$ is a string function but will work satisfactori-

ably it is important to remember that SuperBasic evaluates all the parameters of an extension before calling its code. All functions in the parameter expressions get called, even if they are not used to make the final result. If the first parameter is less than one, or more than the number of remaining parameters, PICK\$ gives a 'bad parameter' error.

## Assign any value

SuperBasic is unusual in that it allows you to assign any value to any other, regardless of type. In the last example we used integer numeric parameters in place of strings. There is no need for an integer PICK\$ function, because PICK\$ converts its parameters automatically from numeric to textual form. The resultant text is converted back when it is assigned to the integer variable MAX%.

Any number can be converted, or 'coerced', into a string of text but not all text can be coerced into a number. If you try to store text in a numeric variable you get an 'error in expression' report:

```
MIN%="Fish"
```

SuperBasic also stops if INPUT or READ find unexpected characters when looking for numbers.

To avoid this problem we must check the contents of each string before we try to coerce it into a number. This is easy for

```
* QL WORLD DIY TOOLKIT - utility routines
* Ver. 0.5, Copyright 1988 Simon N Goodwin.
*
bv.rip equ $58 A6 offset of maths SP
*
start lea.l define,a1
move.w $110,a2 BP,INIT vector
jmp (a2)
*
define dc.w 1 One procedure
dc.w purge-*
dc.b 5,'PURGE'
dc.w 0,3 Three functions
dc.w pick-*
dc.b 5,'PICK$'
dc.w check_int-*
dc.b 6,'CHECKZ'
dc.w checkflt-*
dc.b 6,'CHECKF'
dc.w 0
*
* Task removal procedure: PURGE
*
purge moveq #0,d1 SuperBASIC task ID
moveq #0,d2 = task at top of tree
moveq #2,d0 MT.JINF
trap #1
move.l d1,d0 End of tree?
beq.s all_done
moveq #0,d3 No error
moveq #5,d0 MT.FRJOB
trap #1
bra.s purge
*
* String selection function: PICK$
*
pick cmp.l a3,a5
beq.s bad_param No parameters!
move.l a5,d5
lea.l 8(a3),a5 Isolate first parameter
move.w $112,a2
jsr (a2) CA.6TINT
bne.s all_done Return error code
move.w 0(a1,a6.l),d0 D0 is parameter value
ble.s bad_param Parameter must be >=0
addq.l #2,a1
move.l a1,bv.rip(a6) Tidy Maths stack
asl.w #3,d0 Multiply parameter by 8
bvs.s bad_param Reject if over 4095
add.w d0,a5 A5 -> End of par. entry
cpa.l d5,a5 Past the true end?
bhi.s bad_param
lea.l -8(a5),a3 Bracket that one alone
move.w $116,a2 Fetch it, as a string
jsr (a2) CA.6TSTR
bne.s all_done
moveq #1,d4 Return string
moveq #0,d0 No error
rts
*
bad_param moveq #-15,d0 Set error code
all_done rts
*
```



short numeric values, like "0" or "123" but it becomes more difficult once you allow all the valid numeric formats — positive and negative numbers, spaces before the start of the value, decimals and exponents like "1e6" or ".2E-4".

You could write a long, complicated SuperBasic routine to scan through a string and check that it represented a valid number but that represents a great deal of work, especially if you need to recognise valid text like " 0." or "+1e-9" or "2.343434E4" or " 03.1416" or "0.0009", while rejecting invalid cases like "0.11.20", "1e" or "+-2". SuperBasic checks can slow things dramatically.

The QL can already check and convert all these numerical formats, using built-in machine code, so it seems pointless to write elaborate Basic to do the job. What we need is a SuperBasic function which

will convert text into a number, returning a special value if the text cannot be converted.

The QL uses two routines for text-to-numeric conversion. One handles integers in the range +/-32767 while the other works with floating point values. You can call these routes from Basic via the new DIY Toolkit functions CHECK% and CHECKF.

## CHECK functions

The CHECK functions are exactly compatible with SuperBasic INPUT; they share the same code, quirks and all. The functions do not necessarily scan the whole parameter. They stop when they reach a character which cannot be in a number and ignore leading spaces and zeros. The first non-space character may be a plus or minus sign but a positive value is assumed if there is no explicit sign.

CHECK% works for integers between -32767 and 32767. The value -32768 is reserved; you get that result if coercion failed. This means you can store the result in an integer variable, whether or not the text was valid.

The integer conversion routine CA.DTOI rejects -32768, was noted in my article on QL ROM bugs in June, 1988. If you expect only positive values from 0-32767 you can treat anything less than zero as a sign something went wrong.

CHECKF works for floats. It returns the arbitrarily-chosen but unlikely value -1E600 if a number is not found. The main part of the value, the mantissa, may be up to nine digits long, with an optional decimal point. Positive or negative decimal exponents are optional.

The result is a binary floating point number, so decimal fractions may not be converted exactly; for instance, one tenth is an infinitely recurring binary fraction. Results are always the same as for INPUT or SuperBasic tokenisation.

## Task identifier

The assembly code is listing one. As usual, the START routine calls BP.INIT, the ROM vector which adds new routines to SuperBasic. The table labelled DEFINE gives the names and addresses of one procedure and three functions.

PURGE starts by calling MT.JINF, which can find the identifier of the 'next' task, given a task identifier in D1. In this case I set D1 to 0, the task identifier of SuperBasic, so that each call returns the identifier of the 'next' task after SuperBasic in register D1.

I check the result by moving it into register D0, normally used for the system error code. If the result is zero we have run out of tasks to purge and can return the zero code to Basic. Otherwise we call MT.FRJOB to get rid of the task and loop back to find another one.

The code of PICK\$ is concerned almost exclusively with error-checking. It isolates

```

100 REMARK Sinclair QL World HEX LOADER
110 REMARK by Marcus Jeffery & Simon N Goodwin
120 :
150 CLS: RESTORE : READ space: start=RESPR(space)
160 PRINT "Loading Hex..." : HEX_LOAD start
170 INPUT "Save to file...":$f$
180 SBYTES $f$,start,byte : STOP
190 :
200 DEFINE FUNCTION DECIMAL(x)
210 RETURN CODE(h$(x))-48-7*(h$(x)>"9")
220 END DEFINE DECIMAL
230 :
240 DEFINE PROCEDURE HEX_LOAD(start)
290 byte = 0 : checksum = 0
300 REPEAT load_hex_digits
310 READ h$
320 IF h$="*" : EXIT load_hex_digits
330 IF LEN(h$) MOD 2
340 PRINT"Odd number of hex digits in: ";h$
350 STOP
360 END IF
370 FOR b = 1 TO LEN(h$) STEP 2
380 hb = DECIMAL(b) : lb = DECIMAL(b+1)
390 IF hb<0 OR hb>15 OR lb<0 OR lb>15
400 PRINT"illegal hex digit in: ";h$ : STOP
420 END IF
430 POKE start+byte,16*hb+lb
440 checksum = checksum + 16*hb + lb
450 byte = byte + 1
460 END FOR b
470 END REPEAT load_hex_digits
480 READ check
490 IF check <> checksum
500 PRINT"Checksum incorrect. Recheck data.":STOP
520 END IF
530 PRINT"Checksum correct, data entered at: ";start
560 END DEFINE HEX_LOAD
570 :
580 REMARK Space requirements for the machine code
590 DATA 302
600 :
610 REMARK Machine code data
620 DATA "43FA000A3A790000","01104ED20001002A"
630 DATA "0550555247450000","0003003205504943"
640 DATA "4B24007006434845","434B250000620643"
650 DATA "4B45434B46000000","7200740070024E41"
660 DATA "2001674876007005","4E4160ECB8C673A"
670 DATA "2A0D4ABE000083479","000001124E92662C"
680 DATA "3031EB006F245489","2D490058E740691A"
690 DATA "D4C0B8C5621447ED","FFF8347900000116"
700 DATA "4E92660878017000","4E7570F14E757A00"
710 DATA "60027A01286E0058","3079000001164E90"
720 DATA "66EA534366E42049","D0F1E80054882E08"
730 DATA "41E900024A456732","720299C134790000"
740 DATA "011AAE92226E0058","3479000001024E92"
750 DATA "670839BC8000E800","600639B1EB00E800"
760 DATA "2D4C005B78037000","4E75720699C13679"
770 DATA "0000011AAE93226E","0058347900000100"
780 DATA "4E92671439BC0FCA","EB0039BCB8AEB02"
790 DATA "39BC346BE04600C","29B1E802EB0239B1"
800 DATA "EB00EB002D4C0058","780270004E75"
810 DATA "","*",23183

```

### Listing 2.

the first parameter and uses the vectored utility CA.GTINT to fetch its value. The value determines which of the remaining parameters is fetched by CA.GTSTR, the string fetching utility.

When a resident function is called, registers A3 and A5 point to the start and end of the parameter table. Each parameter has an eight-byte entry, so we can fetch a specific parameter by advancing A3 from the start of the table until it points to the required entry.

The ASL.W instruction shifts the parameter number left three places. This is a quick way of multiplying by eight. Then we set A5 to point eight bytes past A3, so that CA.GTSTR returns only a single value.

If all goes well the string ends up on the maths stack, which is where Basic expects to find the result of a function. The last step is to put the value 1 in D4 to indicate that the result is a string.

CHECKF and CHECK% are very similar. Both take a string parameter but CHECK% uses CA.DTOI to coerce it into a two-byte integer, whereas CHECKF uses CA.DTOF to coerce the string into a six-byte floating point value. If the coercion fails we return -32768

```

% Coercion check functions: CHECK% and CHECKF
%
check_flg moveq #0,d5      Flag
          bra.s  check_num

%
check_int moveq #1,d5      Flag
check_num move.l bv.rip(a6),a4 Get old stack top
          move.w #11b,a0    Get strings
          jsr    (a0)       CA.GTSTR
          bne.s  all_done
          subq.w #1,d3      Check for one parameter
          bne.s  bad_param
          move.l a1,a0      Find text start
          add.w  0(a1,a6.l),a0 Add length
          addq.l #2,a0      Point to end
          move.l a0,d7      D7 -> End+1
          lea.l  2(a1),a0   A0 -> Start
          tst.w  d5         Sift INTs from FLOATs
          beq.s  get_float

%
get_int   moveq #2,d1      No. of bytes needed
          sub.l  d1,a4      Space at top of stack
          move.w #11A,a2    Check for stack space
          jsr    (a2)       BV.CHRIX
          move.l bv.rip(a6),a1 Get safe A1 value
          move.w #102,a2
          jsr    (a2)       CA.DTOI
          beq.s  coerced

%
          move.w #-32768,0(a4,a6.l)
          bra.s  ret_int

%
coerced   move.w 0(a1,a6.l),0(a4,a6.l)
ret_int   move.l a4,bv.rip(a6) Set new Maths SP
          moveq #3,d4      Return integer
          moveq #0,d0
          rts

%
get_float moveq #6,d1      No. of bytes needed
          sub.l  d1,a4      Room for result
          move.w #11A,a3    BV.CHRIX
          jsr    (a3)
          move.l bv.rip(a6),a1 Get safe A1 value
          move.w #100,a2
          jsr    (a2)       CA.DTOF
          beq.s  got_float

%
% Coercion error: return floating point value 1e600
%
          move.w #4042,0(a4,a6.l)
          move.w #-18266,2(a4,a6.l)
          move.w #13416,4(a4,a6.l)
          bra.s  ret_float

%
got_float move.l 2(a1,a6.l),2(a4,a6.l)
          move.w 0(a1,a6.l),0(a4,a6.l)

%
ret_float move.l a4,bv.rip(a6) Set new Maths SP
          moveq #2,d4      Float result flag
          moveq #0,d0
          rts

%
end

```

### Listing 1.



(CHECK%) or -1E600 (CHECKF).

The main problem in these functions is keeping the SuperBasic maths stack tidy. The coercion functions put results on the maths stack but they do not check that there is room for the value. It is for us to check that there is space before values are stacked.

Further, the parameter fetch routine CA.GETSTR leaves a string on the maths stack; that is what we pass to the converter, so we must be careful not to clobber it with the new value.

CHECK% and CHECKF share code to fetch the string parameter and set up pointers to the value. Both coercion routines expect the start of the string to be at (A6,A0), with (A6,D7) pointing just past the end.

The rest of the code is slightly different for each datatype. First we check there is room for the result — two bytes for an integer or six for a floating-point value. We leave the string on the maths stack and check for space below it.

Once there is room for the result we call the coercion routine. If all goes well we have a value at the bottom of the maths stack which can be copied to the top and returned to Basic. If the attempt resulted in an error we put the default result

directly on to the top of the stack before returning.

The code for the SuperBasic access routines is listed in two forms. Listing one is the source text, assembled using HiSoft DevPac. You can type this text into your assembler if you want to customise the



code or tweak it to see how it works.

Listing two gives you a quick way to enter the code without using an assembler. It loads the equivalent machine code from DATA statements and saves it in a file.

The first part of listing two is Marcus Jeffery's hex loader, used in each month's DIY Toolkit project. Only the DATA, from line 590 onwards, changes from month to month.

When you RUN listing two the data is read and checked. A message appears if you have made a typing mistake. Otherwise the loader asks you to enter the device and file-name and creates a concise code file.

You must load and link this file before loading Basic programs which use the new functions. These three commands will link the code into Basic:

```
base=RESPR(302) : LBYTES "file
name",base : CALL base
```

Once you have typed these commands you can use PURGE, PICK\$, CHECK% in your programs.

● Next month I will present more Toolkit code and commentary in the February QL World. If you would like me to explore a specific area in this column, or implement new commands, particularly ones unavailable in commercial toolkits, please keep sending your suggestions.

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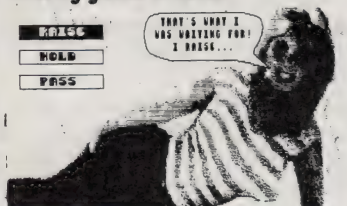
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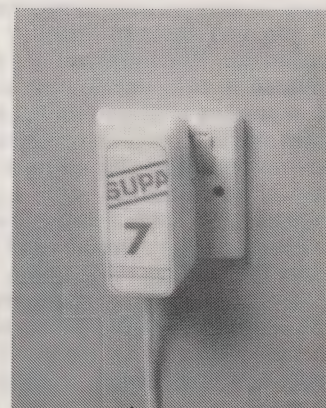
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## Professional Publisher

In a rapidly-growing field of professional and amateur endeavour, desk-top publishing programs are highly competitive and, as with word processors, have had a meteoric rise in popularity.

*Professional Publisher* is a new program and not merely a re-write of earlier software. Additions and improvements made to the system have extended its original concept into a complete publishing package. Supplied on two discs and with a main program a massive 200K+, *Professional Publisher* is also the largest program yet produced for the QL.

Because of requirements peculiar to it, a large range of extensions spread across several toolkits are used by *Pro Publisher*.

If you use *QJump Toolkit II* — not required by *Pro Publisher* — the QL repertoire is extended to 150 functions and procedures. When *Pro Publisher* is loaded and if you are using *Lightning* — again not required — the scope of Super-Basic is increased by eight Lightning commands, 57 *Turbo Toolkit* extensions, two *Eye-Q* loading extension and 90 new special *Pro Publisher* extensions, including 12 for use with the Smiling mouse.

On start-up, the differences between *Pro Publisher* and its earlier DP DTP relations is immediately apparent. The first stage defines the structure of your page which may be defined by dimensions, defaulting to A4, in either vertical or horizontal formats.

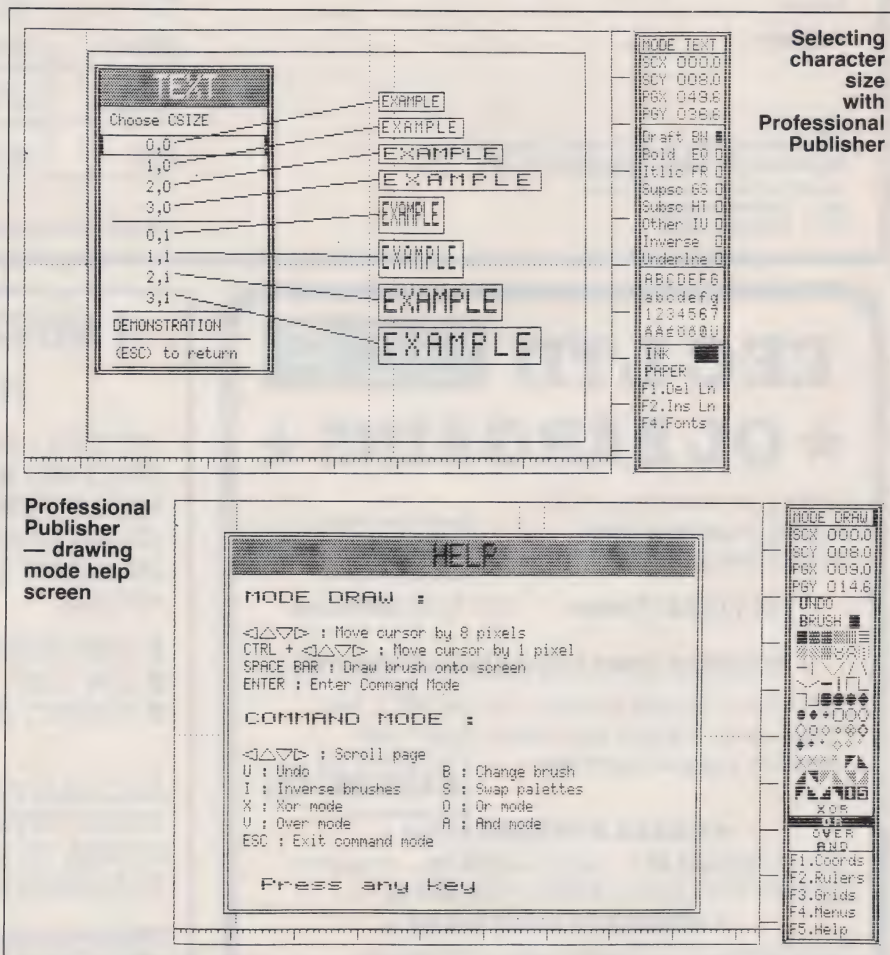
Other global definitions can be established for inverting, reflecting and inverting a page. Page margin surrounds may

be defined, as can the number and gap between columns.

*Pro Publisher* is provided with many layout aids which are available at each level of page design. Lengths of up to eight column breaks can be specified in the page layout specifications. Cursor

you have designed a page layout you can save it as a separate file which will be common to similar publications.

Polygonal boundaries — any mixture of convex and concave, up to 128 sides — can be defined for pictures and/or text. Subsequent loading of either causes the



position, in terms of screen and page, are indicated in the upper right menu corner.

*Pro Publisher* front-end displays the main options, a cameo representation of the page, its dimensions and, when edit mode is entered, a magnified part of the page located under the page cursor. The page cursor can be moved in jumps of 32 pixels, one pixel, or by grid snap. Once

other to load into and flow around the reserved areas.

Navigation, program control and options can be selected from menus by using the cursor keys, the Smiling mouse or keyboard input.

*Pro Publisher* features a full range of file-handling utilities for saving and loading pages, loading pictures, text from



*Editor*, Quill\_\_lis and \_\_doc files preserving all set-up values — a particularly good wildcard directory system and a delete/format utility.

Other device options include a built-in printer driver in which you can load or save a driver, specify linefeeds, line spacing and graphic codes. The latter allows you to input graphics printer codes for single, double and quad density, if the requirements of your printer differ from the set up supplied.

The PDQL *grafiX* program is also supplied free with Pro Publisher, *grafiX* allows individually-variable x and y scale magnification, interpolation, anti-aliasing and 8/9/24-pin printer support.

Pro Publisher is provided with about 200 distinctive font styles in the entire ASCII character set and in four pixel array sizes — 8x8, 16x16, 24x24 and a huge 48x48. Having the larger font matrices minimises the staircase effect, a restriction common to many other DTP systems. Further, anti-aliasing techniques have been employed.

Pro Publisher will accommodate 24 QL fonts and 10 large fonts and a grey scale in memory at one time. You have the option of exchanging one or more of the default fonts with any others you may have. Although 24 fonts are loaded on default, you can also configure Pro Publisher load-up fonts to those you use most often.

In addition to the enormous range of character styles and sizes, you also have the option of editing existing fonts and even designing new ones; you can superimpose and combine fonts in many ways. Pro Publisher includes two font editors. The first is used for QL character sets in a 6x9 matrix, the second for large screen characters, designed in either 16x16, 24x24 or 48x48 matrices.

Putting pictures into your publications could not be simpler. Pro Publisher supports three picture formats — 32K picture files saved from graphics programs or with SBYTES; Eye-Q compressed/partial screens, or pictures lifted from a Pro Publisher page.

Pictures may be taken from a variety of sources. Most commonly, users will find one of the QL art programs suitable for most purposes. Alternatively, you may use one of the good clip-art files supplied with Pro Publisher or, if you wish to avail yourself of the service offered by Sector Software, having pictures digitised.

Once on-screen, you may select a part of the picture to cut and paste to the page or to export to a graphics program. You can slant, distort, reduce, magnify, texture, invert, reflect, re-colour, scroll and manipulate the picture in a variety of ways.

A range of utilities is included in the package, further extending its versatility. You can convert page files from *Desk Top*

*Publisher*, both standard and special editions, the Sector Software *Page Designer II* and the Gap Software *Front Page*.

Sensible defaults have been provided with the program but it is almost inevitable that users will have different requirements and hardware attached to their systems. For this reason, the Pro Publisher configurator allows you to change virtually every default used by the system, from the type of fonts loaded on start-up to the printer driver. If you wish to increase the size of fonts, you are supplied with a utility for the purpose.

## Special Edition ACT

Given billing primarily as an adventure games creator with the user option of linking interactive sound and graphics, the complete ACT system is considerably more comprehensive and flexible than is immediately apparent.

ACT is a modular programming system which, coincidentally, has an enormous potential for games applications, with optional real-time events. For that reason ACT is equally useful for use as a

General text — general information.

### Location/Object Editor:

Location data — defining the characteristics of the user's environment within each location.

Object data — defining the characteristics of any objects used in the program.

**Word Data Editor** — Defines the vocabulary of the system.

**System Editor** — Defines the program operating environment, modules and defaults.

**System compiler** — assembles the two program modules:

**Player program** — Controls player and program interaction.

**Event program** — Controls how player and program interact.

**Graphic editor** — a dedicated drawing program.

**Sound editor** — for linking QL beep files.

**QFill** — two different types of multi-tasking shape fill routines.

Once each of the required elements of

ACT LOCATION and OBJECT EDITOR
v1.51

	0	1	2	3	4	5	6	7	8	9
0	1	1	0	0	0	0	0	20	10	3
10	0	0	0	0	0	0	0	0	0	0
20	0	2	12	34	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	3	0	0	0	0	0
50	0	4	0	0	0	0	45	0	4	0
60	0	0	10	0	0	0	0	0	0	0
70	32	0	0	0	0	127	0	0	0	0
80	0	41	0	0	0	0	0	0	23	0
90	0	0	0	0	10	0	0	0	0	56
100	0	0	34	21	0	0	0	0	0	0
110	0	0	0	0	0	0	0	0	0	0
120	7	0	21	0	0	9	0	0	0	0

Current file: FLPI\_LOAD.dta

No. Locations: 9

Locations number: 0

FLAGS:

Number: 76543210

Value: 00000000

HEX

VAL

00

>> Use cursor keys to select required parameter <<  
 An input number changes its value - <ESC> selects alternative functions  
 New Number:

**Special Edition ACT — location and object editor**

development tool for virtually any type of program requiring user interaction — say one in which there was an optional penalty for incorrect responses.

Typical applications include educational, expert and demonstration programs in the fields of education and training. ACT is one of a collection of dedicated utilities for developing and maintaining individual inter-related system data files which fall into 10 distinct categories:

### The ACT module manager:

**Text information** — incorporating QL/user responses. The following three files eventually will be processed by the efficient ACT text compressor.

**Location text** — information regarding the user's navigation within the program.

**Object text** — interactive information about any objects used in the program.

the program has been developed, an efficient compressor reduces the size of the text information files by as much as 60 percent. At the final stage of production, all data files are compiled into a single file with the ACT Linker module to produce the stand-alone program.

## Supercharge

The original version of the first QL SuperBasic compiler was reviewed in *QL User* in 1985. A complaint which arose subsequently about *Supercharge* was the DP protection system which required that each time you started compilation you had to enter a two-digit, randomly-selected code which was a coherent image discernable only through a device called Lenslok.

With the advent of the more powerful Turbo, it began to look as if *Supercharge*



would become redundant. Proving that appearances can be deceptive, ultimate redundancy proved not to be its fate. Instead, DP has made a number of improvements to this powerful compiler, the first of which was removing the Lenslok requirement.

One of the questions which potential users may ask is "Which of the two compilers is the better for me to buy?" The answer is that Turbo is by far the faster, more powerful and more flexible, and Supercharge is by far the cheaper.

Turbo and Supercharge both have features to commend them. Both provide significant increases in operating speed to SuperBasic programs; both compile correctly-written SuperBasic programs. The new Supercharge has been provided with a number of significant improvements. For one thing, it is faster than the original version.

Another major difference between Supercharge and Turbo is that the former will compile larger programs on an unexpanded QL than is possible with Turbo — on expanded QLs Turbo can handle programs of more than 750K. The new Supercharge, additionally is no longer constrained to a 64K maximum Basic program size.

A benchmark with a heavy content of integer arithmetic.

#### Basic

491 sec.

#### Old Supercharge

15 sec.

#### New Supercharge

11 sec.

### Media Manager

*Super Media Manager* has long held a position of eminence among users suffering from "BAD OR CHANGED MEDIUM". Looking back in the 30 months since its release, SMM has saved me considerable effort in recovering files "I was just about to back-up".

Even so, the SMM user interface — complex menuing system — left much to be desired and, in the midst of what often amounted to a panic, it was very easy to forget on which menus particular utilities were located.

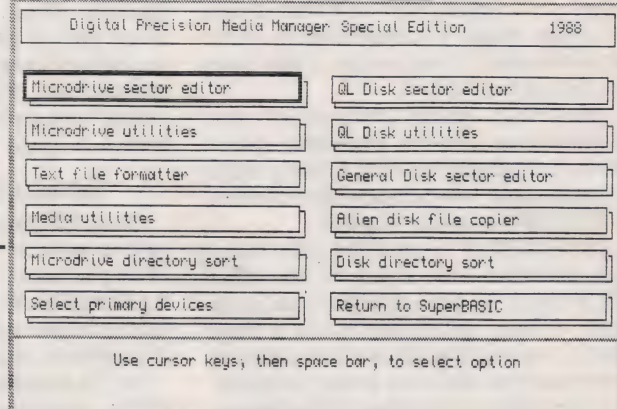
Other annoying features of the old SMM is that it was impossible to abort some incorrectly-chosen options. The user was left with having to re-set and start again, usually escalating the panic.

Having completed a total overhaul and internal streamlining, *Super Media Manager Special Edition* has had its quirks amputated and a number of new features added. Among the additions you can now format and use IBM and Atari discs for copying to and from QL-formatted discs, both at file-level and sector-level.

```
Code, Data, More or Quit (C/D/M/Q)? IDIS SE DIGITAL PRECISION (C) by PL 1988
02007E 00000000 ORI.B 0207A8 1111 MOVE.B (A1),-(A0)
020082 00000000 ORI.B 0207AA 00009191 ORI.B #191,D0
020086 00000000 ORI.B 0207AE 000095050 MOVEP.W $5050(A1),D4
02008A 00000000 ORI.B
020092 00000000
020096 00000000
```

```
IDIS SE DIGITAL PRECISION (C) by PL 1988
021070 5C007100 C7009800 7100FF00 FF00FC01
021080 00000000 00000000 00000000 00000000
021090 00000000 00000000 00000000 00000000
0210A0 00002828 A0A2888A 00000000 00000000
0210B0 00000000
0210C0 FF00FF00
0210D0 FF00FF00
0210E0 FF00FF00
0210F0 FF00FF00
021100 00000000
021110 00000000
021120 00005555
021130 00000000
021140 FF00FF00
021150 FF00FF00
```

#### Sample screens from Special Edition IDIS and Media Manager



### IDIS

The DP intelligent disassembler has been made even more intelligent, with one penalty — *IDIS Special Edition* requires a minimum of 256K memory. Options exist for Code, Data, Trial or Quit. The new option, Trial, offers to attempt to determine automatically — where it was impossible for the earlier IDIS to calculate empirically — whether a location contains data or code.

Once IDIS has completed its scouting excursion and has made the correct decision it switches back to disassembly mode. The other main difference between the standard and Special Edition IDIS is that it "remembers" previously-typed selections, to which subsequent disassembly choices will default.

### Digital C

The original DP release of its Small C Compiler was confined to a maximum of 64K in any single module. There was no access to QL trap calls and system vectors. Further, long integers, long constants and long pointers were not supported. While most of the standard routine library was written in Digital C, machine code would have been faster and more compact.

The new Digital C rectifies all the shortcomings of the standard edition. Going still further, new library functions have been added, including routines for better file handling. Also there is a user choice between 16- and 32-bit optimisation.

The DP portfolio of programs is available in a variety of permutations. Often, programs with titles suffixed by Special Edition require fully-expanded machines. Having said that, it is not a universal rule. Having used a range of desk-top publishers on the Atari ST and

Amiga, I admit that I am very impressed with the superior performance of Pro Publisher. The most notable improvement is that the user interface has been tidied and made consistent throughout the program. The unusual keypress combinations with which earlier DP desk-top publishers were laced liberally are gone.

Professional Publisher is unusual in that, unlike the majority of the older desk-top publishers, it contains everything required, from font editors and graphics file handlers to printer driver routines.

One of the more unusual aspects of ACT is that plenty of animation can be incorporated into its graphics without the complication of sprites. ACT graphics file space is economical and, as ACT drawings are developed from parameter files, file size depends on the intricacy of the drawing.

Whatever happens, computer users will always have the problem of corrupted files and a requirement of portability. No matter how careful one is, losing important data is always a possibility. The new Media Manager has been made user-friendly and has increased functionality.

QL users with programming interests will find IDIS, Digital C and both of the DP SuperBasic compilers exceptionally powerful programs. Supercharge is fast and Turbo, borrowing from digital circuit terminology, is very fast. In addition, Supercharge is very good value — two-thirds of the speed of Turbo for one-third its price.

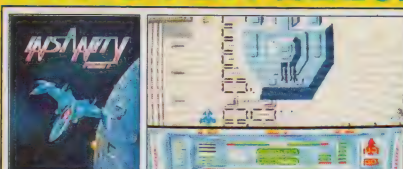
Digital Precision will soon have its software-based MS-DOS Emulator for the QL ready. This will round off its most productive year so far — an average of one new program per month. The six programs reviewed are six of the best.



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# SUPER BASIC

Mike Lloyd continues his essay on good SuperBasic programming practice, and its advantages.

**P**rogramming style is a subject full of controversy. The letters pages of computer magazines can be filled for months by claim and counter-claim for the proper way to code something. Ask four programmers about style and there are likely to be five answers. Yet good programming style is of immense value if quality programs are to be developed and maintained.

Compared to spoken languages, computer languages lack the richness of expression which comes from large vocabularies and flexible syntax but they still provide considerable scope for programmers to develop their particular coding styles. By examining a few lines of a listing, professional programmers can often identify a colleague's work as surely as if it had been autographed. Software companies establish a house style in an attempt to ensure that their products are familiar immediately both to their maintenance programmers and to their customers.

Hobby programmers also develop individual styles. Away from the close-knit, critical world of professional programming teams, these styles are often marred by unnoticed bad habits. This article does not attempt to establish the best way of using SuperBasic but rather to show how programming style can be developed to the advantage of the programmer and the program.

The purpose of setting programming standards is to minimise the disadvantages associated with freedom of expression — inconsistency, unreadability and propensity for error. Good programming standards are consistent, produce readable listings and minimise the chances of errors of logic remaining undetected in a live program.

It is important to differentiate between the rules of syntax and the conventions of style. There are absolute rights and

NOTES	
* A range of 100 lines allocated to each user definition	
* Where possible, put important definitions first and related definitions together	
* Put "local" DATA close to where it will be used, but locate widely used "general" DATA in one place	
* Write most of the program in definitions of between 5 and 25 lines each.	

wrongs connected with syntax. Novice programmers often write IF statements like this:

```
IF value = 12 OR 14 THEN PRINT value
```

The statement is unequivocally incorrect because the interpreter cannot understand it. Stylistic conventions, on the other hand, are restrictions imposed voluntarily by the programmer. Style might determine which of the following alternatives is better:

```
IF x = 5 THEN PRINT string$
```

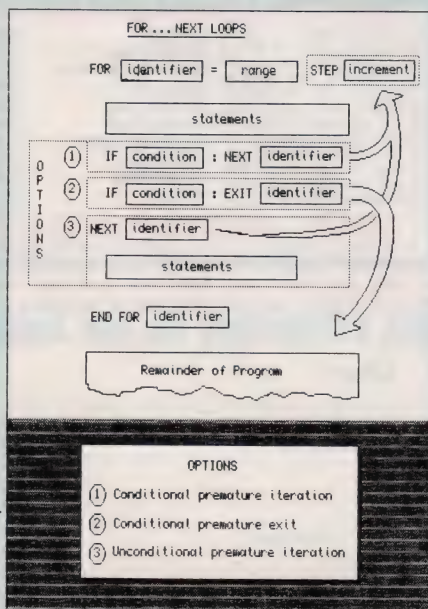
```
IF x = 5: PRINT string$
```

Three views might be held, the first bordering on indifference and the other two equally valid depending on the view of the programmer:

- ★ The options are equally valid because the interpreter accepts them both.
- ★ The first option is preferable because it is more like an English sentence.

## TYPICAL PROGRAM LAYOUT

LINE NUMS	DETAILS
1 TO 99	Non-procedural commands
100 TO 199	DEF PROC init initialising commands
200 TO 299	DEF PROC Second a procedure definition
300 TO 399	DEF PROC Third a procedure definition
400 TO 499	DEF PROC Fourth a procedure definition
500 TO 599	DEF FN Fifth a function definition
600 TO 699	General DATA area



- ★ The second option is preferable because it is briefer and emphasises that there are two statements in the example, not one.

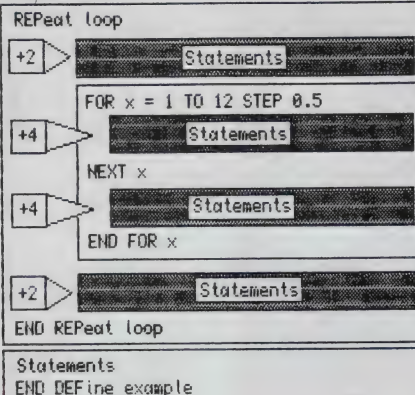
The greatest benefit of a firm programming style is consistency. Not only can code be readily understood by the programmer but the user should also see consistency in the program output. On



```

Define PROCedure example (value, string$)
LOCAL integer, loop, max
Statements....

```



occasion, the Psion programs show a disconcerting lack of consistency. Both the "load" and "save" sequences differ slightly depending on which Psion program is being used, probably because each variation was programmed by a different person.

When a consistent style has been established, new programming problems can often be solved wholly or partly in terms of previously-encountered problems. It is also true to say that falling into bad habits can stultify innovative thought.

The routines published in the SuperBasic articles are written in a style which has been developing through the months with the series. The over-riding objectives have been to present listings so that they can be typed-in by readers with the minimum chance of error and so that their structure and mechanics are revealed clearly. This policy has conflicted occasionally with the normal priorities of brevity and performance. The accompanying inserts show some of the major conventions which were developed to fulfil the objectives.

Readers submitting programs to The Progs will not, of course, be under an obligation to conform to these conventions but they should attempt to meet the same objectives. Finally, before readers send examples of inconsistencies from previous articles, it is worth noting that the SuperBasic style is non-rigorous. In other words, if the choice is between strict orthodoxy and clear expression, the rules will be broken.

Style extends beyond the way individual statements are phrased. Frequently it is possible to code a subroutine using GOSUB, GOTO, a function definition or a procedure definition. The option chosen will reveal something of the programmer's style or perhaps a bad habit.

The *bete noir* of stylists are the GOTO and GOSUB commands, rightly disliked for their habit of making programs utterly unreadable. Programs written in structured languages like SuperBasic are collections of largely independent procedure and function definitions. Unstructured programs tend to become huge labyrinths of impenetrable code, held together by a web of GOTO and GOSUB calls to distant and uncharted parts of the listings.

Similar distaste is reserved for the practice of putting as many unrelated statements on a single logical line as possible. Clear code includes plenty of what is now called "white space" but used to be known as blanks. Spaces should appear where they would occur naturally in English but lazy programmers tend to omit spaces and some languages, notably BBC Basic, insist that spaces are not used. A well-written SuperBasic program will always be more readable than any BBC Basic listing because statements can be spread across lines.

The most advantageous use of space is to indent lines to indicate structure. To be fair to BBC Basic, it includes an option to indent automatically, whereas QL users have to write a program to achieve the same effect. Indenting makes loops and branches easier to follow and ensures that any failure to nest structures correctly is spotted quickly.

SuperBasic includes many structures, each with a wide variety of acceptable variations. Choosing between them all can boil down to just a few simple conventions:

- ★ Use FOR..NEXT loops for pre-determined numbers of repetitions and use REPEAT loops for infinite loops and unpre-determined repetitions.
- ★ Use IF..THEN for single branches and SELECT structures for multiple branches, working round the limitation imposed by the insistence of SELECT on working only with numeric variables.
- ★ Use short forms where they can fit on to one display line.
- ★ Remove all "repeating groups" of lines from programs by recoding them. A prime example is the sad succession of IF CHOICE = X THEN... statements which follow poorly-programmed menu selections.
- ★ Use procedure and function definitions to break programs into "mind-sized" bites of around 15-25 lines of code.

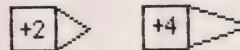
The use of REMarks is also a powerful aid to readability. Without the judicious use of comment lines, complex listings become unreadable but too much comment can also ruin an otherwise cogent program. It is usually best to limit comment to a brief explanation of unusual or intricate code.

A topic which usually generates more heat than light comprises rules about object names. Programmers can spend far too much time inventing arcane nam-

## INDENTING

### NOTES

No of indent spaces:



All structure statements should stand alone on a line.

Related statements should be indented equally

ing conventions for files, procedures, variables and so on where an intelligent, non-rigorous approach would be more beneficial. Names should be meaningful, brief and, where necessary, placed easily into groups. The variables in a large program can be divided into the following categories, each with a particular naming convention:

- ★ *Global variables*, used to represent particular values throughout a program, have a role similar to Qdos system variables. They might be identified by adding a suffix to them.
- ★ *General-purpose variables* also appear throughout a program but they represent similar concepts rather than particular values. LOOP might always be used as a REPEAT structure identifier and CHAN might always hold channel numbers. Because general-purpose variables are used frequently they should be short and care should be taken that they are not used mistakenly for two purposes at once.
- ★ *Transient variables* are those which appear perhaps only in one segment of the program and normally would be declared as LOCAL. Because they are used less widely they may need to have longer names to remind the programmer of their exact purpose.

Further ideas on improving the readability of program source code can be gained from examining the listings published in The Progs section of the magazine. Occasionally, there may also be examples of poor programming practice which can alert readers to the dangers of producing sloppy listings. Initially, re-writing code to comply with conventions is a daunting process but good habits will soon become second nature. Code will be correct first time more of the time and the initial effort will repay itself many times over.

## KEY TO DIAGRAMS

identifier	Iteration control name in FOR..NEXT and REPEAT loops
range	Set of numeric values eg [1,7,9] or [5.6 TO 8.9]
increment	Value by which FOR...NEXT identifier is incremented
statements	General non-structural statements
condition	Expression which evaluates to TRUE or FALSE, eg [X = 7]



THE

# P+R+O+G+S

If you have a program worthy of consideration, send it to 'The Progs',  
Sinclair QL World, Greencoat House, Francis Street, London SW1P 1DG.  
We pay for everything published at the usual page rates.

## Program of the month

### FOX AND HOUNDS

by Adrian Finney

*This month QL World presents two games for the holiday season.*

**T**his program plays the traditional game of *Fox and Hounds* against the computer on a simulated chess board. The fox — the computer — can move forwards or backwards and scores if it reaches the far side of the board. The human player has a

choice of two to four hounds which can only move forward with which to trap the fox. The player wins if the fox is unable to make a move. The computer plays a very skilful game and it can be simple or frustrating according to your choice.

```

100 REMark *****
110 REMark *      FOX AND HOUNDS      *
120 REMark *      by A FINNEY        *
130 REMark *****
140 CLEAR
150 OPEN £8,con_511x255a0x0
160 CLS £8:CSIZE £8,2,1:UNDER £8,1:INK £8,7
170 AT £8,1,12:PRINT £8," FOX AND HOUNDS ":UNDER £
8,0:CSIZE £8,2,0
180 INK £8,5:AT £8,6,2:PRINT £8,"Trap the fox with
your hounds."
190 AT £8,7,2:PRINT £8,"The fox can move in all di
rections, but"
200 AT £8,8,2:PRINT £8,"your hounds can only go fo
rwards."
210 INK £8,4:AT £8,11,2
220 AT £8,11,2:PRINT £8,"How many hounds do you wa
nt (2 to 4)?"
230 q=CODE(INKEY$(-1))-48:BEEP 1000,50
240 IF q<2 OR q>4 THEN GO TO 210
250 q=q*2-1
260 MODE 8:CLS £8
270 OPEN £5,scr_329x240a20x15
280 OPEN £6,scr_150x70a360x15
290 OPEN £7,con_150x100a360x100
300 BORDER £7,1,1
310 PAPER £5,0:PAPER £6,0
320 BORDER £5,3,7
330 BORDER £6,1,3
340 SCALE £5,160,0,0
350 CLS £5
360 FOR y=0 TO 140 STEP 20
370 FOR x1=0 TO 120 STEP 40
380 IF y/40=INT(y/40) THEN x=x1+20:ELSE x=x1
390 square
400 END FOR x1

```

```

410 INK £5,7:LINE £5,0,y TO 160,y
420 END FOR y
430 FOR x=20 TO 140 STEP 20
440 LINE £5,x,0 TO x,160
450 NEXT x
460 UNDER £6,1:INK £6,7
470 AT £6,0,3:PRINT £6," FOX "
480 PRINT £6," AND HOUNDS ":UNDER £6,0
490 INK £6,3:AT £6,4,5:PRINT £6,"by"" A Finney"
500 DIM array(10,10),dogx(4),dogy(4)
510 FOR a=1 TO 8
520 FOR b=1 TO 8
530 IF (a+b)/2=INT((a+b)/2) THEN array(a,b)=9
540 END FOR b
550 END FOR a
560 FOR a=1 TO q STEP 2:array(8,a)=-1:dogy((a+1)/2
)=a:dogx((a+1)/2)=8:NEXT a:array(1,4)=1
570 x=1:y=4:z=1:draw:x=8
580 FOR y=1 TO q STEP 2:z=10:draw:NEXT y
590 FOR x=1 TO 8
600 FOR y=1 TO 8
610 IF array(x,y)<>1 THEN END FOR y:END FOR x
620 c=RND(-1 TO 1):IF c=0 THEN GO TO 620
630 d=-c
640 e=x+1:f=y+c:check:IF g=1 THEN GO TO 670
650 IF array(x,f+c)=-1 OR f+c<1 OR f+c>8 THEN IF a
rray(e+1,f+c)=-1 OR f+c<1 OR f+c>8 THEN IF x<7 THE
N GO TO 990
660 IF array(e,f)=0 THEN GO TO 810
670 e=x+1:f=y+d:check:IF g=1 THEN GO TO 700
680 IF array(x,f+d)=-1 OR f+d<1 OR f+d>8 THEN IF a
rray(e+1,f+d)=-1 OR f+d<1 OR f+d>8 THEN GO TO 970
690 IF array(e,f)=0 THEN GO TO 810
700 e=x-1:f=y+c:check:IF g=1 THEN GO TO 720
710 IF array(e,f)=0 THEN GO TO 810
720 e=x-1:f=y+d:check:IF g=1 THEN GO TO 740

```



```

730 IF array(e,f)=0 THEN GO TO 810
740 IF array(x+1,y+d)=0 AND x<8 AND y+d>0 AND y+d<
9 THEN e=x+1:f=y+d:GO TO 810
750 IF array(x+1,y+c)=0 AND x<8 AND y+c>0 AND y+c<
9 THEN e=x+1:f=y+c:GO TO 810
760 winner=0:GO TO 1550
770 DEFine PROCedure check
780 g=1
790 IF e>0 AND e<9 AND f>0 AND f<9 THEN g=0
800 END DEFine
810 array(e,f)=1:array(x,y)=0:z=19:draw:x=e:y=f:z=
1:draw
820 IF array(8,1)=1 OR array(8,3)=1 OR array(8,5)=
1 OR array(8,7)=1 THEN winner=1:GO TO 1550
830 INK £7,5:CLS £7:UNDER £7,1
840 PRINT £7," YOUR MOVE ":UNDER £7,0
850 PRINT £7,"Which hound\"?"
860 num=CODE(INKEY$(-1))-48:BEEP 1000,50:IF num<1
OR num>(q+1)/2 THEN GO TO 830
870 b=dogx(num):a=dogy(num)
880 CLS £7:UNDER £7,1:PRINT £7," YOUR MOVE ":UNDE
R £7,0
890 PRINT £7,"Enter the\"direction\"via the\"c
ursor keys\"(> or ?).\"
900 na=CODE(INKEY$(-1)):BEEP 1000,50:CLS £7:IF na=
208 THEN d=b-1:c=a+1:GO TO 930
910 IF na=216 THEN d=b-1:c=a-1:GO TO 930
920 GO TO 830
930 IF a<1 OR a>8 OR b<1 OR b>8 OR c<1 OR c>8 OR d
<1 OR d>8 THEN GO TO 830
940 IF array(b,a)<>-1 OR array(d,c)<>0 THEN GO TO
830
950 array(b,a)=0:array(d,c)=-1:x=b:y=a:z=19:draw
960 dogx(num)=d:x=d:dogy(num)=c:y=c:z=10:draw:GO T
O 590
970 IF array(e+1,f+c)=-1 AND x<7 THEN GO TO 700
980 GO TO 690
990 IF array(e+1,f+d)=-1 THEN GO TO 670
1000 GO TO 660
1010 DEFine PROCedure square
1020 INK £5,4
1030 FILL £5,1
1040 POINT £5,x,y
1050 LINE_R £5,20,0 TO 0,20 TO -20,0 TO 0,-20
1060 FILL £5,0
1070 END DEFine
1080 DEFine PROCedure draw
1090 SElect ON z
1100 ON z=1
1110 BEEP 2000,255,2,20,2
1120 INK £5,4:POINT £5,(x-1)*20+10,(y-1)*20+1:INK
£5,2
1130 FILL £5,1
1140 LINE_R £5,0,0 TO 6,6 TO 0,12 TO -4,-9 TO 4,0
1150 ARC_R £5,0,0 TO -12,0,PI/.5
1160 LINE_R £5,0,0 TO 0,-3 TO 5,-5:FILL £5,0:LINE_
R £5,2,-1
1170 FILL £5,1:LINE_R £5,-7,9:LINE_R £5,0,0 TO 0,9
TO 4,-9 TO -4,0:FILL £5,0

```

```

1180 FILL £5,0
1190 INK £5,1:FOR xoff=7 TO 12 STEP 5
1200 CIRCLE £5,(x-1)*20+xoff,(y-1)*20+8,1,.4,PI/2
1210 NEXT xoff
1220 ON z=10
1230 INK £5,7
1240 POINT £5,(x-1)*20+18,(y-1)*20+1
1250 LINE_R £5,-2,0 TO 2,0 TO 0,18 TO 0,-8
1260 FILL £5,1
1270 LINE_R £5,0,0 TO -10,0 TO 0,7 TO -3,-4 TO -4,
0 TO 0,-2 TO 5,-1 TO 0,-6 TO 12,0 TO 0,7
1280 FILL £5,0
1290 POINT £5,(x-1)*20+4,(y-1)*20+1
1300 LINE_R £5,0,0 TO 2,0 TO 0,7
1310 INK £5,5
1320 POINT £5,(x-1)*20+5,(y-1)*20+14
1330 num=0
1340 num=num+1
1350 IF dogx(num)=x AND dogy(num)=y THEN GO TO 137
0
1360 GO TO 1340
1370 POINT £5,(x-1)*20+11,(y-1)*20+5
1380 INK £5,3:SElect ON num
1390 ON num=1
1400 LINE_R £5,0,0 TO 2,0 TO -1,0 TO 0,7 TO -1,-1
1410 ON num=2
1420 LINE_R £5,3,0 TO -4,0 TO 4,5:ARC_R £5,0,0 TO
-4,-2,PI
1430 ON num=3
1440 ARC_R £5,0,0 TO 0,3,PI/.7:LINE_R £5,0,0 TO 3,
3 TO -4,0
1450 ON num=4
1460 LINE_R £5,1,0 TO 0,6 TO -3,-3 TO 6,0
1470 END SElect
1480 ON z=19
1490 POINT £5,(x-1)*20+1,(y-1)*20+1
1500 INK £5,4:FILL £5,1
1510 LINE_R £5,0,0 TO 0,18 TO 18,0 TO 0,-18 TO -18
,0
1520 FILL £5,0
1530 END SElect
1540 END DEFine
1550 CLS £8:INK £8,3:CSIZE £8,3,1:UNDER £8,1
1560 SElect ON winner
1570 ON winner=1
1580 AT £8,1,3:PRINT £8,"I HAVE ESCAPED YOUR HOUN
DS"
1590 ON winner=0
1600 AT £8,1,2:PRINT £8,"CONGRATULATIONS, YOU HAVE
WON"
1610 END SElect
1620 CSIZE £8,2,0:UNDER £8,0
1630 INK £8,7
1640 AT £8,8,4:PRINT £8,"Do you want another game
?"
1650 k$=INKEY$(-1)
1660 IF k$="y" THEN CLS £8:RUN
1670 IF k$="n" THEN STOP
1680 GO TO 1550

```

## BOXES by Mike Rex

This is a two-player simulation of the popular game called *Boxes* or *Join the Dots*, which speeds the action so that there is no need to draw rows of dots or to wait for the game to become interesting.

The object is to give away as

few squares as possible to your opponent. If you create a "three-sided square", your opponent will draw the fourth side, gaining that square and winning another turn as well. This can lead to one player gaining a series of squares before the other player has a

chance to complete a square, so try to avoid giving away any squares for as long as possible. The player with the greatest number of squares claimed at the end of the game is the winner.

The opening screen gives the

option of a long or a short game. The long game starts with a blank grid of 10 x 10 dots — 81 boxes. When a series of squares is started, the computer will complete and colour-code each one in turn.

The short game uses the same number of squares but



the computer plays the early stages for you, partially filling the grid with a random selection of horizontal and vertical lines. No complete or "three-sided" squares are formed, so this has no effect on the final score.

I suggest that one player uses

the cursor keys and the other a joystick plugged into CTL1. To draw a line, move the cursor to the selected point and press the spacebar or trigger. Horizontal and vertical lines are selected automatically, depending on the position of the cursor. No illegal moves are accepted.

Finally, you can vary the number of lines filled when using the short game option by altering lines 2400 and 2480. Those lines decide only how many attempt will be made to place a line. If one already exists, the attempt fails and another random location is

tried the next time. In the case of a vertical line, the computer also has to look at the position of the nearest horizontals before deciding.

This is why twice as many attempts are required to place a roughly equal number of lines.

```

100 REMark *****
110 REMark **** JOIN THE DOTS ****
120 REMark ** By Mike Rex, 1988 **
130 REMark *****
140 OPEN#2,scr_512x256a0x0
150 MODE 4:short=0
160 WINDOW#1,448,205,32,16
170 WINDOW#2,448,205,32,16
180 PAPER 0:CLS:INK 4:CLS#0
190 LINE 10,100 TO 150,100 TO 150,10 TO 10,10 TO 10,100
200 INK 2
210 FOR a=105 TO 15 STEP -10
220 FOR b=15 TO 150 STEP 10
230 FILL 1:CIRCLE b,a,.5:FILL 0
240 END FOR b
250 END FOR a
260 PAUSE 50
270 INK 6:CSIZE 3,1:AT 2,4:PRINT"JOIN ":PAUSE 50:AT
T 2,9:PRINT"THE"
280 PAUSE 50:RESTORE 2630
290 FOR d=1 TO 18
300 READ b,a:FILL 1:CIRCLE b,a,.7:FILL 0
310 END FOR d
320 PAUSE 50
330 LINE 35,55 TO 25,55 TO 25,35 TO 35,35
340 ARC 35,55 TO 35,35,-3.1:CIRCLE 65,45,10
350 LINE 95,55 TO 95,35:LINE 85,55 TO 105,55
360 LINE 135,55 TO 120,55:ARC 120,55 TO 120,45,3:L
INE 120,45 TO 130,45
370 ARC 130,45 TO 130,35,-3:LINE 130,35 TO 115,35
380 PAUSE 50
390 INK 4:CSIZE 1,0:AT 16,7:PRINT"'S' for Short Ga
me 'L' for Long Game":CSIZE 0,0
400 d$=INKEY$(-1)
410 IF d$="S" OR d$="s" THEN short=1:draw_screen
420 IF d$="L" OR d$="l" THEN short=0:draw_screen
430 GO TO 400
440 :
450 :
460 DEFINE PROCEDURE draw_screen
470 DIM grid(100,4)
480 PAPER 0:CLS:PAPER#0,0:CLS#0
490 OPEN #5,scr_290x210a180x28
500 BORDER#5,1,2
510 INK 4:INK #5,6
520 SCALE #5,20,0,0
530 FOR a=19 TO 1 STEP -2
540 FOR b=1 TO 19 STEP 2
550 FILL#5,1:CIRCLE#5,b,a,.1:FILL#5,0
560 END FOR b
570 END FOR a
580 p=0:t=0:one=0:two=0
590 IF short=1 THEN short_game:ELSE move_select
600 END DEFINE
610 :
620 :
630 DEFINE PROCEDURE move_select
640 p=p+1:IF p>2 THEN p=1
650 CSIZE 2,1
660 INK p*2:AT 1,0:PRINT "Player ";p:AT 2,0:PRINT
"-----"
670 BORDER#5,1,p*2
680 CSIZE 0,0:INK 6
690 t=0:play
700 END DEFINE
710 :
720 :
730 DEFINE PROCEDURE play

```

```

740 x=10:y=10
750 INK#5,6
760 IF t=0 THEN OVER#5,-1:CIRCLE#5,y,x,.4
770 move_cursor
780 END DEFINE
790 :
800 :
810 DEFINE PROCEDURE move_cursor
820 REPEAT key
830 IF KEYROW(1)=2 THEN cursor_left
840 IF KEYROW(1)=4 THEN cursor_up
850 IF KEYROW(1)=16 THEN cursor_right
860 IF KEYROW(1)=128 THEN cursor_down
870 IF KEYROW(1)=64 THEN select_line
880 END REPEAT key
890 :
900 :
910 DEFINE PROCEDURE cursor_left
920 IF y>1 THEN
930 y=y-1
940 OVER#5,-1:CIRCLE#5,y+1,x,.4:CIRCLE#5,y,x,.4
950 ELSE
960 move_cursor
970 END IF
980 END DEFINE
990 :
1000 :
1010 DEFINE PROCEDURE cursor_right
1020 IF y<19 THEN
1030 y=y+1
1040 OVER#5,-1:CIRCLE#5,y-1,x,.4:CIRCLE#5,y,x,.4
1050 ELSE
1060 move_cursor
1070 END IF
1080 END DEFINE
1090 :
1100 :
1110 DEFINE PROCEDURE cursor_up
1120 IF x<19 THEN
1130 x=x-1
1140 OVER#5,-1:CIRCLE#5,y,x-1,.4:CIRCLE#5,y,x,.4
1150 ELSE
1160 move_cursor
1170 END IF
1180 END DEFINE
1190 :
1200 :
1210 DEFINE PROCEDURE cursor_down
1220 IF x>1 THEN
1230 x=x+1
1240 OVER#5,-1:CIRCLE#5,y,x+1,.4:CIRCLE#5,y,x,.4
1250 ELSE
1260 move_cursor
1270 END IF
1280 END DEFINE
1290 :
1300 :
1310 DEFINE PROCEDURE select_line
1320 IF t=0 THEN OVER#5,-1:CIRCLE#5,y,x,.4
1330 c=0:CSIZE 1,1:AT 5,0:PRINT "":C
SIZE 0,0
1340 IF (x-1)/2=INT((x-1)/2) AND y/2=INT(y/2) THEN
1350 box=(y/2)+((x-1)/2)*10
1360 IF grid(box,0)=0 THEN LINE#5,y-1,x TO y+1,x:B
EEP 550,5:ELSE no_line
1370 grid(box,0)=1:IF x>2 THEN grid(box-10,2)=1
1380 check_for_square_horiz
1390 :
1400 ELSE IF x/2=INT(x/2) AND (y-1)/2=INT((y-1)/2)

```



```

THEN
1410 box=(y+1)/2+((x/2)-1)*10
1420 IF grid(box,1)=0 THEN LINE#5,y,x-1 TO y,x+1:B
EEP 500,5:ELSE no_line
1430 grid(box,1)=1:IF y>2 THEN grid(box-1,3)=1
1440 check_for_square_vert
1450 :
1460 ELSE no_line
1470 END DEFine
1480 :
1490 :
1500 DEFine PROCEDURE no_line
1510 BEEP 10000,255
1520 play
1530 END DEFine
1540 :
1550 :
1560 DEFine PROCEDURE check_for_square_horiz
1570 IF grid(box,0)=1 AND grid(box,1)=1 AND grid(b
ox,2)=1 AND grid(box,3)=1 THEN INK#5,p*2:FILL#5,1:
LINE #5,y-.95,x TO y-.95,x+1.9 TO y+1,x+1.9 TO y+1
,x TO y-.95,x:FILL#5,0:INK#5,6:c=c+1
1580 IF x>2 THEN IF grid(box-10,0)=1 AND grid(box-
10,1)=1 AND grid(box-10,2)=1 AND grid(box-10,3)=1
THEN INK#5,p*2:FILL#5,1:LINE #5,y-.95,x-2 TO y-.95
,x-1 TO y+1,x-1 TO y+1,x-2 TO y-.95,x-2:FILL#5,0
:INK#5,6:box=box-10:c=c+1
1590 IF c>0 THEN
1600 IF p=1 THEN one=one+c:ELSE two=two+c:END IF :
END IF
1610 search_for_more:ELSE move_select
1620 END DEFine
1630 :
1640 :
1650 DEFine PROCEDURE check_for_square_vert
1660 IF grid(box,0)=1 AND grid(box,1)=1 AND grid(b
ox,2)=1 AND grid(box,3)=1 THEN INK#5,p*2:FILL#5,1:
LINE #5,y+5E-2,x-1 TO y+5E-2,x+.9 TO y+2,x+.9 TO y
+2,x-1 TO y+5E-2,x-1:FILL#5,0:INK#5,6:c=c+1
1670 IF y>2 AND grid(box-1,0)=1 AND grid(box-1,1)=
1 AND grid(box-1,2)=1 AND grid(box-1,3)=1 THEN INK
#5,p*2:FILL#5,1:LINE #5,y-1.95,x-1 TO y-1.95,x+.9
TO y,x+.9 TO y,x-1 TO y-1.95,x-1:FILL#5,0:INK#5,6:
box=box-1:c=c+1
1680 IF c>0 THEN
1690 IF p=1 THEN one=one+c:ELSE two=two+c:END IF :
END IF
1700 search_for_more:ELSE move_select
1710 END DEFine
1720 :
1730 :
1740 DEFine PROCEDURE search_for_more
1750 REMark ** LOOK UP **
1760 IF box<81 THEN
1770 n=0:FOR s=0 TO 3:IF grid(box+10,s)=1:n=n+1:EN
D FOR s
1780 IF n=3 THEN
1790 FOR s=0 TO 3:IF grid(box+10,s)=0 THEN EXIT s:
END FOR s:t=1:box=box+10:new_line
1800 END IF :END IF
1810 :
1820 REMark ** LOOK DOWN **
1830 IF box>10 THEN
1840 n=0:FOR s=0 TO 3:IF grid(box-10,s)=1:n=n+1:EN
D FOR s
1850 IF n=3 THEN
1860 FOR s=0 TO 3:IF grid(box-10,s)=0 THEN EXIT s:
END FOR s:t=1:box=box-10:new_line
1870 END IF :END IF
1880 :
1890 REMark ** LOOK LEFT **
1900 IF box MOD 10>1 THEN
1910 n=0:FOR s=0 TO 3:IF grid(box-1,s)=1:n=n+1:END
FOR s
1920 IF n=3 THEN
1930 FOR s=0 TO 3:IF grid(box-1,s)=0 THEN EXIT s:E
ND FOR s:t=1:box=box-1:new_line
1940 END IF :END IF
1950 :
1960 REMark ** LOOK RIGHT **
1970 IF box MOD 10<9 THEN
1980 n=0:FOR s=0 TO 3:IF grid(box+1,s)=1:n=n+1:END

```

```

FOR s
1990 IF n=3 THEN
2000 FOR s=0 TO 3:IF grid(box+1,s)=0 THEN EXIT s:E
ND FOR s:t=1:box=box+1:new_line
2010 END IF :END IF
2020 :
2030 IF t=1 THEN scan_grid:ELSE CSIZE 1,1:AT 5,0:P
RINT"Your Turn Again":CSIZE 0,0:t=0:play
2040 END DEFine
2050 :
2060 :
2070 DEFine PROCEDURE new_line
2080 x=INT(box/10)*2+1
2090 y= box MOD 10*2
2100 IF s=1:x=x+1:y=y-1
2110 IF s=2:x=x+2
2120 IF s=3:x=x+1:y=y+1
2130 select_line
2140 END DEFine
2150 :
2160 :
2170 DEFine PROCEDURE scan_grid
2180 IF one+two=81 THEN game_over:ELSE
2190 AT 11,0:PRINT"Looking For More !"
2200 FOR box=1 TO 89
2210 n=0:FOR s=0 TO 3:IF grid(box,s)=1:n=n+1:END F
OR s
2220 IF n=3 THEN
2230 FOR s=0 TO 3:IF grid(box,s)=0 THEN EXIT s:END
FOR s:AT 10,0:PRINT"
":new_line
2240 END IF :END IF
2250 END FOR box
2260 CSIZE 1,1:AT 5,0:PRINT"Your Turn Again":CSIZE
0,0:t=0:play
2270 END DEFine
2280 :
2290 :
2300 DEFine PROCEDURE game_over
2310 IF one>two THEN w=one:pw=1:ELSE w=two:pw=2:EN
D IF
2320 CSIZE 2,1:AT 1,0:PRINT"Well Done":AT 2,0:PRIN
T"Player ";pw
2330 CSIZE 1,1:AT 5,0:PRINT"You Win By ";w:AT 6,0:
PRINT"Squares To ";81-w;" ":CSIZE 0,1
2340 AT 9,0:PRINT"Another Game ? (Y/N)"
2350 d$=INKEY$(-1)
2360 IF d$="y" OR d$="Y" THEN draw_screen
2370 IF d$="n" OR d$="N" THEN NEW
2380 GO TO 2350
2390 END DEFine
2400 :
2410 :
2420 DEFine PROCEDURE short_game
2430 FOR h=1 TO 150
2440 x=INT(RND(1 TO 19))
2450 y=INT(RND(2 TO 18))
2460 IF (x-1)/2=INT((x-1)/2) AND y/2=INT(y/2) THEN
2470 box=(y/2)+((x-1)/2)*10
2480 IF grid(box,0)=0 THEN LINE#5,y-1,x TO y+1,x:B
EEP 550,5:grid(box,0)=1:IF x>2 THEN grid(box-10,2)
=1
2490 END IF
2500 END FOR h
2510 FOR v=1 TO 300
2520 x=INT(RND(2 TO 18))
2530 y=INT(RND(1 TO 19))
2540 IF x/2=INT(x/2) AND (y-1)/2=INT((y-1)/2) THEN
2550 box=(y+1)/2+((x/2)-1)*10
2560 IF grid(box,1)=0 AND grid(box,0)=0 AND grid(b
ox-1,2)=0 THEN LINE#5,y,x-1 TO y,x+1:BEEP 500,5:gr
id(box,1)=1:IF y>2 THEN grid(box-1,3)=1
2570 END IF
2580 END FOR v
2590 move_select
2600 END DEFine
2610 :
2620 :
2630 DATA 25,55,115,35,85,55,55,45,125,55,65,35
2640 DATA 125,45,25,35,105,55,45,45,125,35,75,45
2650 DATA 135,55,35,35,95,55,35,55,95,35,65,55

```



# MICRODRIVE

## KEY

B = Superbasic; A+O = assembler and object code; M+B = machine code and Basic loader; A+B+O = assembler and Basic loader and object code; S = supercharged; L = QLiberated; f1 = monitor mode; f2 = TV mode

### 1. DIY ASSEMBLER by Giles Todd (B) £5

A complete two-pass assembler which assembles all 68008 code and supports the directives DRG, END, EQU, DC and DS.

### 2. MINI MONITOR by Richard Cross (A+O) £3

Multi-tasks on the QL using only 3K of RAM. Commands include dumping registers, memory and ASCII m/c trace, register store, memory move and store, and jumps. *QL User*, October 1985.

### 4. GOLF by Shergold and Tose (B f2) £2

Up to 50 courses of varying difficulty with lakes, rivers, bunkers and trees. You decide power and direction of each stroke. *QL User*, May 1985.

### 5. PALADIN by Williams and Holliday (A+O) £5

All-machine code space-invaders game used as the basis of the games programming series beginning in April 1985.

### 7. PACMAN by Steve Deary (B) £1

Almost 20 screens of varying difficulty including an invisible maze. *QL User*, March 1985.

### 8. FAMILY TREE by Andy Carmichael (B) £3

Archive program and database for assembling and displaying large family trees. *Theory of Relativity*, *QL User*, July/August 1985.

### 9. COMPOSER by James Lucy (L) £3

Completed in *QL User*, October 1985, this QLiberated program allows you to compose, play and edit music, including tempo, staccato, legato and sharps.

### 17. CAD QL by Tony Quinn (S) £4

The QL is particularly suited to CAD programs. This version includes rubber banding and user-definable symbols. *QL World*, September 1988.

### 19. STARPORT 2001 by Karl Jeffrey (M+B) £3

Galaxian-style arcade game with fast m/c entry. *QL World*, November 1986.

### 24. DESIGN 3D by J. F. Tydeman (S) £4

3D screen designs with the minimum of fuss. *QL World*, March/April 1987.

### 25. STELLARIS by D. Carmona (B f1) £4

Real-time space adventure against the computer, including economic simulations, lunar landing and superb graphics. *QL World*, June 1987.

### 29. BRIDGE by Peter Etheridge (B) £4

Excellent version including accurate bidding, automatic or manual card play, replay hands, save and load and more.

### 32. ADVENT2 by Phillip Sproston (B) £4

Arcade adventure with humour: rooms, robots and problems to keep you on your toes.

### 33. CLOCK by Leslie Fahidy (B f2) £3

On-screen clock to set or read the time. Education, *QL World*, June and July 1987; complete program.

### 34. QL CONVERSION/CALCULATOR (f2) £2

Weights and measures, conventions and reverse Polish, converts anything to anything. Menu-driven, easy to use.

### 35. QWHIST by John Wakefield (B) £3

You play south and the computer plays north against automatic east/west opponents. *QL World*, August 1987.

### 36. MAIL MERGE by Stanley Sykes (B f2) £1

Handy utilities providing mail merge and labeller for Quill files, plus a demo.

### 37. THE DOUBLE by P. G. Ives (B f2) £4

A large football strategy game. You manage a team through four divisions, buying and selling, boosting morale through the league and F.A. Cup season.

### 40. ROULETTE by Santiago Rubio (B) £3

Spanish/English version of the gambling game, including Leigh Pattern system to break the bank. *QL World*, September 1987.

### 44. COMPRESS by David Marsh (B) £2

Utility to compress SuperBasic files without losing the program structure.

### 45. SUPERBREAKOUT by R. Davidson (M+B) £2

Fast m/c version of the classic bat, ball and wall game. Optional double bats and/or balls.

### 48. YAHTZEE by Jason Price (B) £2

The popular dice-game with on-screen graphics. Easy and addictive. *QL World*, November 1987.

### 50. BANK by Jay Lewington (B) £4

Menu-driven program to keep track of several bank accounts, including credits and debits, dated standing orders, statements and more.

### 52. SPACE PODS by Simon Quinn (M+B) £3

Your lone ship must protect six energy pods against the aliens. Machine code. *QL World*, December 1987.

### 53. GRAPHIC WRITER by S. M. Walker (B) £2

A graphic design program which can save your pictures as SuperBasic commands for use in other programs. *QL World*, December 1987.

### 54. ZAPMAN by L. Miles (M+B) £3

Fast-action m/c version of the Pacman genre. Variable skill levels and maze formats.

### 55. ADVENTURE PLAYTIME by A. Pemberton (B) £3

An extensive adventure where you must complete tasks for the inhabitants of a strange land. coded messages and hints included.

### 56. SPACE INVADERS by Paul McKinnon (M) £3

Very fast, challenging version of the classic, with ugly aliens and protective shields.

### 57. SPELLED by Timo Salmi (B) £3

A complete spelling checker for Quill—lis files. 7,500 words automatically expandable. Required two cartridges and 512K expansion.



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## 59. DUNGEONS by Geoffrey Evelyn (B) £4

As wizard, superhero, megahero or elf you must explore the dungeons, fighting monsters and collecting treasure in this one- to four-player game. Needs two cartridges and an expanded QL.

## 60. SPEEDMIND by William Henderson (B) £3

A mastermind-style game played with coloured pages. You have 12 attempts at breaking the code against the clock. *QL World*, January 1988.

## 61. COMPANDER by A. Quigley (M9) £1

Compresses screen designs into the smallest files we have seen from a similar routine. *QL World*, April 1988.

## 62. DOMINOES by Adrian Steen (B f2) £2

A version of the classic English dominoes to play against the computer. *QL World*, May 1988.

## 63. VICIOUS VIPER by Ian Humphreys (B) £3

A version of the snake game in Basic. "Simple, frustrating, addictive, playable." *QL World*, July 1988.

## 64. TAKTIX by Nigel Ford (B) £3

Six or more can play the computer in a fierce game of European conquest. Put aside at least an hour. *QL World*, July 1988.

## 65. DUAL DOMINOES by Heimo Geske (B) £4

Two addictive versions of European dominoes with splendid graphics, to be played in mode 4 against the computer.

## 66. FTIDY by Howard Clase (B) £4

"A very pleasant file handling front-end type program, very clear and simple to use" — *QL World* software editorial. Machine code data file handlers *Data-maker* and *Data-loader* are included in the package.

## 67. LEAGUE SECRETARY by C. B. Storey (B) £3

You enter the match results and this program updates the league tables. Suitable for any sporting league organised on the lines of the Barclays Football League.

## 68. TAB—EDITOR by Richard Williams (B, compiled) £3

A flexible text editor for easy entry and manipulation of listings. Includes simple movement through columns, full block copying, special SORT for tabular listings, and very flexible tabbing. "The author has taken a lot of trouble to get it right." Code available from author.

## 69. WORDSEARCH by David Watson (B) £3

Generates 20-word wordsearch puzzles with large-letter screen dumps using the Easel gprint—prt routine (which must be added by the user). "A nice program and different to the usual run of wordsearches" to appear in November.

## 70. QTRON by Axel Berle (M + B) £3

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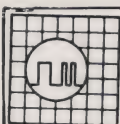
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- **SERIAL PRINTER BUFFER** user configurable up to 32K
- **DUPLICATE CODE SHARING** allows multiple copies of the same program without losing memory to additional code space e.g. 12 copies of Abacus with 230K free.
- **COMMAND FILE MODULE** easily creates files which will operate the machine in your absence. For example it could load quill, fill in your address, type a standard letter and print it. You will, however, have to post it yourself.
- **USER FRIENDLY.** It was described as "virtually idiot proof" by a major software reviewer.

**Available on disc or Microdrive and still only £25**

## CAMBRIDGE COMPUTERS Z88

*-from Sir Clive Sinclair*

**£287**

- Built in screen
- Full size keyboard
- Built in word processor
- spreadsheet and database
- 32K RAM
- Diary and Calculator
- Comms software
- All Z88 accessories available
- Runs for 20 hrs on 4 AA batteries
- Many more features

**QL-Z88 file transfer software £15**  
(QL-Z88 cable - £8)

Use the QL for storage and editing of files, or use the Z88 as a portable terminal. Version 2 now available - send SAE for update!

**Purpose built Z88 Carrying case**  
with room for six Eproms. Protection for your portable for only £10.

### ■ SOFTWARE

Cartridge Doctor	£13.00
Eye Q	£29.00
Turbo	£99.00
The Editor (DP)	£30.00
Forth	£34.00
Toolkit 2 (EPROM)	£34.00
Keydefine	£10.00
Talent Workbench	£25.00
Psion Chess	£17.00
Better Basic (DP)	£25.00
Home Finance	£20.00

### WRITETURN £12.00

Prints spreadsheets, documents and text files sideways on an Epson or compatible printer, no more taping two sheets together!

### ■ QL SPARES

**Service Manual** - This is the most up to date book for repairing the QL. It contains all circuit diagrams, faultfinding charts and oscilloscope displays to enable you to repair your own QL or understand how it works. This is not the cheap photocopy offered by some firms **£25.00**

**QL Test Software** - Including RS232 loopback lead. Tests all major functions of the computer - sound, colour, keys, RS232, Micro-drive etc. Used by repair companies - **£14.00**

Keyboard membrane	£6.00
Bubble mat	£3.00
JS ROM set	£28.00
ZX8301 ULA	£15.00
ZX8302 ULA	£13.00

### ■ VARIOUS

Trump Card	£175.00
QL dustcover	£5.00
Microdrive labels on tractor feed per 100	£3.50
20 Microdrives in Transform storage box	£40.00
Internal 640K memory upgrade	£99.00
Astracom 1000 modem	£175.00



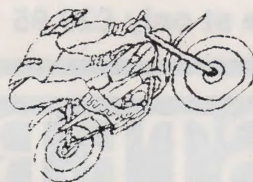
# SECTOR

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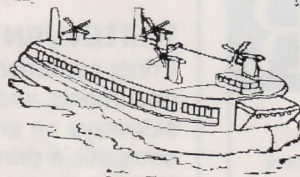


Have you heard the news? your newsletters, advertisements, flyers and other Page Designer 2 documents will have 100 percent more impact when you include these clip art designs.



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- 4: Maps
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- 6: Business
- 7: Cartoons



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Clip art n°8  
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**What QL and Z88 owners have been waiting for. An on-line magazine dedicated exclusively to these machines.**

Anyone can log on to the bulletin board, absolutely free of charge, from 6O'clock in the evening until 9 O'clock the following morning, all weekends and Bank Holidays.

Anyone with a modem and 1200/75 Viewdata software can access the board for the news, letters, reviews, problems and to order QL and Z88 products on-line.

The board will feature noticeboards for second hand equipment advice, messages etc. and last minute Sector Software bargains that didn't make the QL World copy deadline. Special offers will also be advertised

**Phone 0772 454328 after 6pm and at weekends**



# SOFTWARE

## PAGE DESIGNER 2

**A comprehensive new desktop publishing program for the expanded Sinclair QL, written by Dilwyn Jones.**

**Page Designer 2** is a powerful new version of the program from the Quanta software library. Completely re-written and with a host of new facilities, it puts desktop publishing within the reach of everyone, at an affordable price.

**Page Designer 2** incorporates many features found on systems costing thousands of pounds. It provides full WYSIWYG, is easy to use and is supplied with a comprehensive manual. The program will run on a Thor or QL with at least 256K expansion memory and disc interface. A modular version will be made available for non-disc users.

- Create documents up to 9 pages
- Memory resident hires and text fonts
- Variable linespacing and all QL text sizes
- Cut & paste to memory and file for clip art
- Transparent superimposition option
- Load in Quill docs, .lis and ASCII text files
- Full graphics with rotate/reflect.
- Taskmaster, Spellbound & Qram compatible
- Page magnify and preview facilities

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- ★ Creates clip art for Page Designer 2
- ★ SPEM Digitiser compatible

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**Loads more features, write for full specification. Only £35.**

SEE US AT THE MICROFAIR ON DECEMBER 10TH AT THE HORTICULTURAL HALL LONDON!

## OVERDRIVE

### GRAPHICS IN QUILL!

Overdrive is a new concept in printer drivers which allows you to include graphics in your Quill, Archive, Abacus and other programmes that use the printer. Simply place the file name of a screen dump in curly brackets within the text of a letter or in a field in archive or a cell in Abacus. When Overdrive sees the file name it will include the graphic dump at that point. Standard paragraphs can be assigned to spare keys. Overdrive also gives you 255 translate sequences.

**Still great value at only £16**

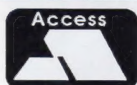
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### THE ULTIMATE IN PRINT QUALITY

Omnidump is a sophisticated new print program designed to be used in conjunction with **Page Designer 2**.

Omnidump gives amazing quality print dumps from Page Designer 2 by using multipass, multioffset printing. It provides grey scale printing and can also print pages sideways.

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## SECTOR SOFTWARE



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